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FOURTY FIFTH ANNUAL REPORT

OF THE

DUPLICATE

DEPARTMENT OF MARINE AND FISHERIES

For the Fiscal Year

1911-12

MARINE

PRINTED BY ORDER OF PARLIAMENT



OTTAWA

PRINTED BY C. H. PARMELEE, PRINTER TO THE KING'S MOST
EXCELLENT MAJESTY

1912

-1913.] Price, 25 cents.



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[No. 21—1913.]

*To His Royal Highness, Field Marshal Prince Arthur William Patrick Albert,
Duke of Connaught and Strathearn, K.G., K.T., K.P., &c., &c., Governor
General and Commander-in-Chief of the Dominion of Canada.*

MAY IT PLEASE YOUR ROYAL HIGHNESS:

I have the honour to submit herewith, for the information of Your Royal Highness and the Parliament of Canada, the Forty-Fifth Annual Report of the Department of Marine and Fisheries, Marine Branch.

I have the honour to be,

Your Royal Highness's most obedient servant,

J. D. HAZEN,

Minister of Marine and Fisheries.

DEPARTMENT OF MARINE AND FISHERIES,

OTTAWA, November, 1912.

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REPORT

OF THE

DEPUTY MINISTER OF MARINE AND FISHERIES

To the Honourable J. D. HAZEN,
Minister of Marine and Fisheries.

SIR,—I have the honour to report on the transactions and service of the Marine Branch of the Department of Marine and Fisheries for the fiscal year ending March 31, 1912.

This report contains not only the reports of the officials of the Marine Branch but the reports of harbour commissioners, pilotage authorities, port wardens and report of wrecks and casualties. The reports of harbour commissioners, &c., are for the calendar year, and were formerly published as Supplement No. 1 of the Annual report. Since the transfer of the hydrographic survey service, tidal and current surveys, wireless telegraphy and naval militia, the reports of officers of these branches have been published in the report of the Naval Service. Space is, therefore, available in this publication for the reports formerly comprising the Supplement mentioned above. The supplement has always contained valuable information, especially in the reports of the harbour commissioners, which show the trade of the ports under commission.

The season of navigation of 1911 opened earlier and closed later than usual, giving the department fair opportunities to carry on the work of construction of lighthouses, fog-alarms and foundation piers. The maintenance of aids to navigation extended over a longer period than usual. The Quebec agent in his report states that navigation closed later in the St. Lawrence river than in any year recorded. Successful efforts were made to keep open important lake ports in Ontario and Georgian bay. The work in the eastern provinces also continued to a later period.

The expenditure of the department for the fiscal year was \$5,594,997.95; the appropriations of parliament totalled \$7,294,444.50; leaving the unexpended balances amounting to \$1,700,090.61; overdrawn, \$644.06. Of the total expenditure of the Department of Marine and Fisheries, the sum of \$683,857.28 was spent for fisheries from the appropriation of parliament, and the additional sum of \$159,999.70 in connection with the fishing bounty, which is not an appropriation of parliament.

The ocean and river service included expenditure on Dominion steamers for construction and maintenance. The three principal items under this head of expenditure were for Dominion steamers, investigation into wrecks, and patrolling and exploring northern waters by the steamer *Arctic*. The total expenditure for ocean and river service was \$1,128,907.73. The total for public works chargeable to capital

account was \$1,167,462.56. This expenditure included the outlay for dredging plant and work in the St. Lawrence river ship channel.

Lighthouse and coast service included the cost of lighthouses, fog-alarms and buoys and buoy steamers, but other large expenditures were made from this appropriation also. The total amount expended for lighthouse and coast service was \$2,128,242.36. The maintenance of the scientific institutions of the Marine Branch, consisting of the meteorological and magnetic service, cost \$148,144.06. The expenditure for marine hospitals, shipwrecked and distressed seamen, was \$57,016.11. In connection with relief to shipwrecked and distressed seamen, it may here be noted, that different amounts were paid to the British Board of Trade to reimburse that department for expenses incurred on behalf of Canadian crews of vessels in distress. Steamboat inspection expenditure amounted to \$45,353.11, which covered the salaries of inspectors and their expenses of travelling.

All the expenditure under the above headings, with subdivisions of accounts of the service, will be found in a carefully prepared statement which forms an appendix to this report.

The subdivisions and branches of service under which the whole work of the Marine Branch was carried out are as follows:—

The construction of lighthouses and fog-alarms by the Engineer's branch.

The maintenance of lights, gas buoys and other buoys by the Commissioner of Lights branch.

The Lighthouse Board, which decides the necessity for aids to navigation.

Dominion steamers.

The ship channel St. Lawrence river, and Sorel works.

Meteorological and magnetic service.

Investigations into wrecks.

Board of steamboat inspection.

Cattle shipments inspection.

Marine hospitals.

Submarine signals.

Shipping under the Merchants Shipping Act.

Legislation and administration of laws relating to the Department of Marine and Fisheries.

Humane service in connection with seamen.

Wrecking plant subsidized.

Winter communication.

Removal of obstructions to navigation.

Examination of masters and mates and issuing certificates.

Pilotage.

Government of ports and proclaiming of harbours in the Dominion.

Control of harbours and government wharfs.

Dominion steamers, Marine Branch.

Hudson bay and navigation of northern waters.

Port wardens.

Wreck receivers.

Harbour commissioners.

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In addition to these subdivisions it is appropriate to mention that agents of the department at Halifax, St. John, N.B., Charlottetown, Quebec, Montreal, and Victoria, B.C., have as usual performed the duties connected with navigation and marine service in their districts under instructions from Ottawa. The work relating to the officers of the Marine Branch of the department in Ontario and Manitoba has been performed under instructions direct from headquarters.

The agents have reported in detail upon the various branches of service within their districts in the outside service. Some important and special items of information regarding lighthouse and fog-alarm construction and maintenance, movements of Dominion steamers, buoy service, submarine warnings, improvements in navigation and various subjects have been summarized for this report.

The reports of heads of branches have been summarized in examination for brevity of description in reporting upon the transactions of the department, but the comprehensive reports of the officials in charge, contain the year's work in detail.

LIGHTHOUSE CONSTRUCTION AND REPAIRS.

The construction of towers, other buildings, protection work and repairs was performed under the engineer's branch of the department. Plans and specifications of the various kinds of buildings and class of work were first prepared, and the work carried out in accordance with them under inspection.

In the province of Nova Scotia, seven wooden towers were built, one fog-alarm building, one skeleton steel tower, four pole lights, six dwelling houses, two store-houses, five oil sheds, five boathouses, one breakwater, five day beacons and one beacon for Port Churchill; three diaphones were installed, and protection work was done at seven stations; extensive repairs were made at seven stations.

In the province of New Brunswick, one reinforced concrete tower was built, four wooden towers, one foundation to a tower, one skeleton steel tower, one breakwater, two iron spindles placed in rock for buoys, one diaphone and one boiler were installed, and extensive repairs made at six stations.

In Prince Edward Island, three pole lights were erected, minor repairs to light-houses and at stations were made, and a workshop and test shed begun at Charlottetown for use of the agency.

In Quebec, three reinforced concrete towers were erected, also seven wooden towers, one fog-alarm building, four dwellings for lightkeepers, nine pole lights, three oil sheds, two boathouses, one storehouse, three sheds, three sets of movable range lights, one duplicate diaphone plant installed and five altered and repaired, one roadway constructed, one cistern and extensive repairs made at eleven stations.

Experiments were also made at Flower ledge in connection with fog signals, and minor repairs at others.

In the Montreal agency, two range lights were completed, protection work at one station built, work at one station begun last year was completed, tower and building at St. Helen island moved and concrete pier constructed and repairs made at six stations.

The work in Ontario consisted of building one combined light tower and dwelling, two steel skeleton towers, five wooden towers, three reinforced concrete towers,

two pole lights, two dwellings, one fog-alarm building, three oil stores, two boat-houses, two diaphones installed, two beacons built, one telephone line and repairs made at eleven stations.

In British Columbia the work this year was extensive, owing to the construction of a Dominion depot for storing and repairing buoys and material for lighthouses, beacons and for aids to navigation generally in the northern part of British Columbia. The station cost \$177,706 under contract. One unwatched light on concrete base was built, two echo boards erected, first order single flashing light tower, one dwelling, two boathouses, re-erection of the lighthouse shelter huts for containing provisions for shipwrecked mariners on the west coast of Vancouver island, nine miles of trail from the life-saving station to Carmanah, two diaphone plants installed, material for erection of two more and for two acetylene beacons provided. Materials and machinery to replace fog-alarm plant at one station were supplied; extensive repairs to two stations were made.

The total number of light stations throughout the Dominion at the end of the fiscal year was 980, counting those range lights with separate keepers, consisting of first, second, third, fourth, fifth and sixth order, pressed bulb lights and catoptric lights. Lightships, lightboats and gas buoys are not included in the number of lights, but form a separate list of aids to navigation.

Notices to Mariners were issued, relating to the establishment of aids to navigation, changes in established aids and improvements to lighthouse buildings, fog-alarms, beacons and buoys. These notices contain valuable information and have been sent to various ports where masters of vessels can procure them for their guidance in entering ports and navigating waters in which the improvements have been made. Known obstructions to navigation, caused by wrecks and accidents to vessels, were made subjects of notices. In addition, notices were also issued for the benefit of Canadian mariners, respecting aids in waters contiguous to Canadian waters around the coast of Newfoundland, Labrador and part of the United States. Some important notices were sent out relating to changes and improvements in British and foreign waters, but these notices did not embrace all British and foreign notices received by the department. Selections only of special concern to Canadian seamen were made and included in the departmental 'Notices to Mariners.' All hydrographic notes which reached the department, however, were embodied in Canadian notices.

Work was done for the meteorological service, the life-saving service, and in wharf construction at several places.

The Dominion depot at Prescott where lanterns, lamps and illuminating apparatus are made and repaired, is now under the Chief Engineer's branch for control and management. An inventory of the plant and material, including lamps, lanterns and their parts, was made, previous to the change of control.

Lanterns and other illuminating apparatus were tested, where necessary, and shipped from the depot to the new lighthouses in the province of Ontario and eastern provinces.

The list of lights published annually in one volume will in future be published in three volumes, entitled: Atlantic Coast, including the St. Lawrence river to head of ocean navigation; Inland Waters, comprising the great lakes and minor waters in Ontario and Manitoba; Pacific Coast and inland aids in British Columbia.

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The details of all work performed in the Engineer's branch will be found in the report of the Chief Engineer, Appendix No. 1.

OBSTRUCTIONS TO NAVIGATION.

Obstructions to navigation are removed either by the owners of vessels wrecked, or sunk, or by the department when the owners neglect to do so, and the amount paid for removal recovered from the owners where possible. The work of removal is controlled by the Engineer's branch and tenders are generally invited, but if unreasonably high the work may be done by the available plant of the department.

The remaining part of the hull of the *Tecumseh*, which vessel was burned in Goderich, was removed by contract at a cost of \$2,350.

The steamer *Lycoming*, which sunk in Rondeau harbour, Lake Erie, was removed by contract at a cost of \$4,900.

The schooner *Palestine* sunk in the Ste. Croix river, N.B., and the hull was removed by daily work under the St. John agency at a cost of \$500.

ICEBREAKING.

Two contracts for icebreaking in Thunder bay were made: one to keep the harbours of Port Arthur and Fort William and West Fort William open for navigation until December 17, 1911, and to open these harbours in the spring of 1912, when the Sault Ste. Marie canal opened for navigation. The contract price was \$19,250, and included an agreement to remove all lightkeepers from their stations when the lights were extinguished. Another contract was entered into to keep the St. Joseph's channel clear of ice until the extreme cold weather made ice sufficiently strong to carry teams from the mainland to St. Joseph's island, and to open the channel before the ice became dangerous for travelling in 1912; cost, \$500.

LIGHTHOUSE SERVICE.

Under this head is included the maintenance of lighthouses by the delivery of supplies during the year. The Superintendents of Lights in the different agencies selected as usual for each lighthouse and fog-alarm the articles necessary to keep the lights in operation, and under their supervision these supplies were delivered to the lightkeepers. The superintendents received their instructions from the agents, with the exception of the lighthouse district of Ontario. The officer for this province has his headquarters in Ottawa, and performed the work on the great lakes successfully by means of the Dominion steamer *Simcoe*. This vessel was also employed to carry building material for repairs to lighthouses, and at the same time carried out the gas buoy service in several districts.

The work performed in the several agencies by Superintendents of Lights in connection with lighthouse maintenance has been reported by the agents.

ILLUMINANTS.

The kinds of illuminants used in the lighthouses were not changed from the previous year. They are acetylene, kerosene oil and petroleum vapour. The kerosene

oil is refined to the requirements of a specification prepared in the department, and must stand a high flash test at 60 degrees Fah. Acetylene is used in a number of unwatched lights and in the lighted buoys throughout the Dominion.

BUOYS, LIGHT-STATIONS AND SUBMARINE BELLS.

The Commissioner of Lights and Buoys has reported upon the lights in operation in the Dominion, lightkeepers and submarine warning bells and stations. His report consists of statements of the number of lights exhibited and other aids to navigation along the coasts and on the lakes and rivers, and the number of lightkeepers attending them. Gas and other buoys are under the control of this branch. Statements have been prepared showing the details of the service mentioned here.

Submarine warnings received the attention of the Commissioner of Lights. During the past year experiments have been made in the way of securing submarine bells to gas buoys by an improved attachment. In carrying out these experiments some length of time must elapse before a decision can be arrived at in relation to the durability of the connections of the bell to the buoy.

The report of the Commissioner of Lights and Buoys forms Appendix No. 2 of this report.

ST. LAWRENCE SHIP CHANNEL.

The ship channel of the River St. Lawrence between Montreal and Father Point has a total length of 340 statute miles.

The contracted part of the river, which may properly be called the 'Ship Channel,' commences at the Traverse, 220 miles distant from Montréal.

The project for the channel between Montreal and Quebec had in view a channel of 30 feet depth, at the extreme low water of 1897, from Montreal to tidal water at Batiscan, and from Batiscan to Quebec at extreme low tide. The width contemplated was a minimum of 450 feet in the straight portions, and from 550 to 750 feet at the bends. An anchorage was to be provided at White Buoy Curve, Lake St. Peter, of 800 feet in width.

The 30 foot channel is now completed to the upper end of Cap à la Roche channel, a distance of 107½ miles from Montreal. The anchorage basin in Lake St. Peter was completed and opened for navigation.

During the summer of 1911 most of the Cap Charles channel widening was completed to 450 feet in width.

The total length of channel requiring dredging is 70 miles; length dredged in 1911, one and a fifth of a mile; total length of 30 foot channel dredged is 65.25 miles; length yet to be dredged, 4.75 miles.

A good start was made on the North channel below Quebec with two dredges. It has been decided to deepen this channel to 35 feet at extreme low tide with a width of 1,000 feet. Good progress has also been made on the channel approach to floating dock basin in Montreal harbour. Owing to the nature of the material to be removed it will take one more season to complete the approach. The total cost of the ship channel from 1851 to the end of the fiscal year 1911 has been \$14,524,555.51, divided into: dredging, \$8,947,029.83; plant, shops, surveys, &c., \$5,577,525.68.

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The number of cubic yards removed amounted to 78,231,531. In 1911-12, 4,509,904 yards were dredged.

In the report of the Superintendent of the Ship Channel work, are several comparative tables showing the number of cubic yards dredged in each year, in connection with the 27½ foot and 30 foot channels, and the nature of the material moved in the several divisions of the channel.

In the same report is shown the length of the channel at 35 feet depth to be dredged and work done. Requiring to be dredged, 90.38 miles; length of dredging done, 7.36 miles; to be dredged, 83.02 miles; cubic yards dredged, 5,648,994 in the 35 foot channel. The cost per cubic yard in different kinds of material and work by different dredges is contained in the same report. The total number of cubic yards dredged between Montreal and Quebec was 3,336,354, at an average cost of 14²/₁₀₀ cents per cubic yard; the total number of cubic yards moved by the whole dredging fleet during the year was 4,509,904, at a total cost of \$588,697.60, or at the average rate of 13⁵/₁₀₀ cents per cubic foot.

The dredging fleet consisted of eleven dredges with tugs and scows.

The report of the Superintendent of the Ship Channel contains also the report of Captain N. B. McLean regarding the icebreaking work of the icebreakers *Montcalm* and *Lady Grey*. The last vessel to leave Montreal was the *Bray Head* on December 4. The buoys had been left in position for this vessel to pass down the river. The *Lady Grey* was employed in lifting the buoys after the river became full of floating ice.

The icebreakers began their work of icebreaking at Cap Rouge on January 12. The winter during January, February and March was very cold, and ice made rapidly from Quebec to Montreal, causing the usual jam at Cap Rouge. The steamers were unable to work advantageously during the winter. The *Montcalm* was not able without the assistance of the *Lady Grey* to clear the ice at Cap Rouge, and was sent several times to Seven Islands during the winter.

The marine signal telephone stations were kept in operation on the St. Lawrence river between Montreal and Crane island during the season of 1911, and the semaphores at St. Jean des Chaillons, St. Nicholas and St. Augustine.

The report of the Superintendent of the ship channel in detail, forms an appendix to this report. Accompanying this report is a profile map showing the progress made up to the end of 1911 in the ship channel.

SOREL SHIPYARD.

The work done at Sorel shipyard consisted principally of extensive and ordinary repairs to dredges, tugs and scows of the St. Lawrence river ship channel fleet and machinery; vessels connected with the construction and maintenance of lights, and vessels of the Public Works Department.

The building of three dredges, three twin screw tugs, one coal barge, seven dumping scows, one testing scow and one rock cutter progressed during the year. The engines and machinery for the tugs were made at St. John, N.B., and the machinery for the rock cutter was imported from Scotland.

The extensive repairs to government vessels consisted of hauling out of the water, caulking, painting and rebuilding parts of the hulls of vessels of the different classes. The other repairs were the usual overhauling and ordinary repairs made to all the departmental vessels wintering at Sorel and requiring repairs during the year.

The statement of expenditure at the shipyard shows a total of \$1,216,820.03, but this sum includes the cost of operating the dredging plant in the ship channel.

The report of the Superintendent of the shipyard, with the statement of expenditure in detail, forms an appendix to this report.

Necessary repairs of a somewhat minor nature were made to a number of buildings of the shipyard, and several roofs painted. The construction of a pier for a 130 ton crane was begun and some progress made; wharfs and ways were kept in good condition.

DOMINION STEAMERS.

The tonnage, dimensions, horse-power, etc., of the different steamers of the Marine Branch are given under the heading of Dominion steamers for reference. The movements of each steamer during the season of navigation are here recorded in order to show the subdivision of the service in which she is employed. Several of the steamers are employed most of the year round, doing special service during the winter.

An account is given of the periods in which they were employed and the time in which they were laid up for overhauling and repairs.

The inspectors of hulls and machinery of Dominion steamers performed the work of inspection of those vessels and made estimates of the amount of work to be done and upon their recommendations the repairs were put in hand. Mr. T. R. Ferguson is Chief Inspector of Machinery for Dominion steamers in eastern waters, Mr. J. D. Stevens is Assistant Machinery Inspector for the maritime provinces, and Mr. T. McConkey, Ships-husband and Inspector of Hulls.

In British Columbia, the inspection was done by the general steamboat inspectors of hulls and machinery. The usual overhauling of vessels and repairs are made during winter to vessels at their winter quarters, but to vessels kept in commission the most suitable or available time is chosen.

QUEBEC DISTRICT.

'Champlain.'

The *Champlain* is a screw steel vessel, built in Paisley, Scotland, in 1904. She is 120 feet long, 30.3 feet wide and 17.6 feet deep; 225 net, 522 gross tonnage, and 87 nominal horse-power.

The *Champlain*, as on the previous year, was in the ferry service between Rivière Ouelle wharf on the south shore, Murray bay, St. Irénée and Cap à l'Aigle on the north shore of the River St. Lawrence. On this route she made two trips daily except Sundays from June 5 until September 21.

The ferry, which is 11 miles wide, was unusually difficult to keep open owing to the severity of the winter and the consequent heavy ice.

She was laid up for repairs from May 26 until June 24 and again from October 27 until November 24, and was replaced by the *Rouville*.

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She transported 13,210 passengers, a large quantity of freight, served 1,854 meals to passengers, and earned \$11,518.82.

'Montcalm.'

The *Montcalm* is a powerful icebreaker, specially designed for the St. Lawrence river service. She was built at Yokers, G.B., in 1904, is a twin screw steel vessel, 245 feet long, 40.6 feet wide and 15.7 feet deep; 526 net, 1,432 gross tonnage, 406 nominal and 4,250 indicated horse-power at a steam pressure of 220 pounds.

She is in command of Captain Pelletier, carries a crew of 63 men, and is engaged, in summer, in the lighthouse and buoy service in the Gulf and River St. Lawrence and Strait of Belle Isle. In winter, she is used as an icebreaker on the St. Lawrence and in continuing communication between Quebec and Seven Islands, Anticosti and other places.

The *Montcalm* sailed for the Gulf of St. Lawrence on April 19. While in the gulf she cruised from the north of Cape Race to St. Paul's island to ascertain ice conditions, and reported the information gained to the wireless station at Cape Race, Newfoundland, for the benefit of inbound vessels.

Arriving at Quebec on May 10, she was laid up. She was placed in dry dock on the last of May, had repairs made to her hull, boilers and machinery, and left the dock on July 18. Leaving Quebec on July 27 with supplies for lights in the Strait of Belle Isle, she completed a thorough inspection of lights, fog-alarms and buoys, and returned to Quebec on August 15, completing a cruise of 2,201 miles. She left on an inspection cruise on August 31 for Anticosti island and Baie des Chaleurs, returned on December 16, sailed for north shore St. Lawrence, Anticosti, Strait of Belle Isle, Gaspé, and returned on November 5, after which she assisted the *Druid* in the buoy service until the close of navigation.

She made three trips to Seven Islands: the first on December 8, the second on February 8, calling at Anticosti; and the third on March 16, again calling at Anticosti.

The balance of her time was devoted to icebreaking operations at Cap Rouge, until March 31 which closes the report for the fiscal year.

'Druid.'

The *Druid* is a single screw steel vessel, built in Paisley, Scotland, in 1902. She is 160 feet long, 30.1 feet wide, 12.5 feet deep; 149 net, 503 gross tonnage, and 59 horse-power.

This vessel is commanded by Captain Michael Gagnon, carries a crew of 31 men, is employed in the lighthouse and buoy service of the Quebec agency from Platon to Father point, a distance of 185 miles.

She is always ready for service; sailed 14,067 miles and consumed 2,403 tons coal from April 1 to November 20, 1911.

'Eureka.'

The *Eureka* is a single screw steel vessel, built in Glasgow, G.B., in 1893, for the Department of Public Works; is now in the pilot service of this department, and is

94.7 feet long, 22 feet wide, 11.9 feet deep; 170 gross, 91 net tonnage, and 40 horse-power.

She is commanded by Captain Bélanger, carries a crew of 19 men; rendered satisfactory service to the pilotage branch during the season; left her station on December 8 and wintered in the Louise basin, where she was thoroughly overhauled and put in good state of repair for the next season's work.

The number of vessels boarded by pilots from the *Eureka* during the year was 1,227 steamers, 15 yachts, 14 barques—a total of 1,256.

'Rouville.'

The *Rouville* is a screw steamer, built in the government shipyard, Sorel, in 1906; is 125 feet long, 26 feet broad, 14.2 feet deep; 301 gross, 144 net tonnage, and 54 horse-power. She is commanded by Captain Aristide Belanger, carries a crew of 20 men, and is under the control of the construction of lighthouses and fog-alarms branch of this department.

At the beginning of the fiscal year she was undergoing repairs; sailed for different stations in the gulf on April 27; returned on May 16, left for Anticosti on May 19, replaced the *Champlain* while undergoing repairs; then continued her regular work until the close of navigation, when she wintered in the Louise basin, where she was repaired and fitted out for next season's work.

'Arctic.'

The *Arctic* is a single screw wooden vessel, built in Kiel, Germany, in 1901, and bought by the Department of Marine and Fisheries in 1904. She is 161.4 feet long, 37.2 feet wide, 20.2 feet deep; 762 gross, 518 net tonnage, and 44 horse-power.

She sailed for the Arctic seas on July 7, 1910, to attempt making the Northwest passage, but was unsuccessful and returned to Quebec on September 25, 1911. The crew was paid off except the captain and steward, the latter being engaged in checking materials on board the ship. She was cleaned and placed in winter quarters in Louise dock, where necessary repairs were made.

PRINCE EDWARD ISLAND DISTRICT.

'Earl Grey.'

The *Earl Grey* is a steel icebreaking passenger and freight steamer, designed for navigating the Strait of Northumberland in winter, to keep up steam communication between Prince Edward Island and the mainland.

She was built in 1909, at Barrow-in-Furness, G.B., by Vickers Sons & Maxim, designed by Mr. Charles Duguid, marine architect of the Department of Marine and Fisheries, and is 250 feet long, 47.7 feet wide and 24.1 feet deep. Her tonnage is 2,357 gross and 930 tons net, with a displacement of 3,340 tons.

She has two double-ended and two single-ended boilers, each allowed a pressure of 180 pounds to the square inch; triple-expansion engine of 800 nominal or 6,500 indicated horse-power. The steamer is fitted with wireless telegraphy apparatus and is classed 100A 1 at Lloyds.

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The *Earl Grey* left Georgetown on April 1, 1911, for Charlottetown, but was unsuccessful, and was compelled to return to Georgetown on the 8th; continued on the Charlottetown-Pictou route until May 1. She sailed for Halifax on the 10th, was docked at Dartmouth on May 18, had her bottom scraped and painted and other defects remedied, and sailed for Pictou on the 9th for coal; proceeded to Charlottetown, where she remained until June 24, when she sailed to Montreal to fit out for His Excellency the Governor General, who was preparing to leave Canada.

The *Earl Grey* was ordered to Charlottetown from Quebec on the 16th, and arrived on October 21, where she was thoroughly cleaned, repaired and fitted for winter service.

She began the winter service on December 31, 1911, making round trips daily, on the Charlottetown-Pictou route until January 9, 1912.

The vessel went on the Georgetown route on January 10, having failed to enter Charlottetown harbour. Regular trips on this route were made until January 29, when she became fast in ice four miles east of Pictou.

She reached Pictou on February 1, and continued to make regular trips until the 22nd. The 23rd was lost owing to a snowstorm.

She made regular trips until again delayed at Georgetown by snowstorm on February 28.

She left Pictou on March 11; but ice conditions being unfavourable, returned to Pictou, and returned next day to Georgetown through very heavy ice. She made regular trips until the last of the fiscal year, when she was sailing for Charlottetown but failed to enter on account of heavy ice.

The *Earl Grey* made 52 round trips on the winter routes, carried 109,084 packages of freight, weighing in all 11,820,010 pounds, or 5,410 tons 10 pounds, earning therefrom, \$7,957.48; carried 2,185 first class, 1,111 second class passengers, earning \$4,249. Served 1,554 meals, provided by the steward but from which the ship derives 10 cents per meal, or \$155.40; 1,147 berths to passengers at \$1 each, or \$1,147. The total earnings, therefore, were \$13,508.88.

‘*Minto.*’

The *Minto* is a single screw steel vessel, built specially for winter navigation in the Strait of Northumberland between the mainland and Prince Edward Island. She was built in Dundee, G.B., in 1899, is 225 feet long, 32.7 feet wide, 18.3 feet deep; 372 net, 1,090 gross tonnage, and 216 nominal horse-power and 2,900 indicated.

The *Minto* was plying on the Georgetown-Pictou route from April 1 to 11, when she made her first trip to Charlottetown for the season, and remained on that route until the 22nd. On account of unfavourable ice conditions, she was compelled to go to Georgetown on April 22, and sailed for Pictou and remained on the Georgetown-Pictou route until April 31, when she sailed to Charlottetown. She returned to Pictou the same day, returned to Georgetown, left there for Pictou, left Pictou for Souris on May 2; and on the 3rd sailed for the Magdalen islands. She left Magdalen islands for Pictou on the 5th with passengers and mail, and left Pictou for Charlottetown on the 6th, when she entered the service of the Steam Navigation Company, in which she remained until May 17.

This vessel then sailed for Halifax on the 19th in command of Captain McPherson, arrived there on the 20th, was docked, had her bottom scraped and painted, her engines overhauled, water tanks repaired and decks and holds cleaned in preparation for a voyage to Hudson bay under the direction of the Naval Service.

She completed this service, arriving in Halifax on October 18; then went to Charlottetown on November 4, fitted out there for the winter service which she began on December 30. On that date she made a round trip, in command of Captain Murchieson, between Summerside and Cape Tormentine but owing to heavy ice the captain would not risk the vessel's safety, and she was put on the Charlottetown-Pictou route on January 8, 1912. She abandoned this route on the 10th owing to heavy ice, and sailed for Georgetown and remained on this route until the close of the fiscal year.

She was stuck in the ice from the 5th to the 7th, from the 12th to the 14th and on the 27th February. On attempting to enter Charlottetown on March 15 she was caught in thick ice, where she remained until the 17th, when she returned to Georgetown.

The *Minto* made 48 round trips on the winter route, carried 67,535 packages freight weighing in all 3,184¹⁷³/₂₀₀₀ tons; carried 1,572 first and 542 second class passengers; furnished 663 berths, and her steward provided 1,292 meals.

Receipts—

Earnings from freight.	\$4,903 16
“ passengers.	2,812 90
“ meals.	129 20
“ berths.	663 00
“ hire of ship S. Nav. Co.	1,840 63
Total earnings.	\$10,348 89

‘*Brant*.’

The *Brant* is a wooden vessel, built in Charlottetown, Prince Edward Island, in 1899. She is 100.4 feet long, 19.1 feet wide, 8.5 feet deep; 58 net, 142 gross tonnage, and 33 horse-power.

The *Brant* was continually employed in the lighthouse and buoy service of the Prince Edward Island agency of this department from April 1 to December 31, 1911.

BRITISH COLUMBIA DISTRICT.

‘*Quadra*.’

The *Quadra* is a screw steel vessel, built in Paisley, Scotland, in 1891. She is 174.5 feet long, 31.1 feet wide, 13.6 feet deep; 265 net, 573 gross tonnage, and 120 horse-power.

She is employed in the lighthouse and buoy service in British Columbia waters, and was operating in the northern waters of the province on April 1. She was laid up for general repairs from April 30 to June 15, and from the latter date until September 1 was employed in the Gulf of Georgia, and from that date until November

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1 was delivering supplies to lighthouses and construction materials for wireless stations.

She continued to supply light-stations, wireless telegraph stations and attend buoys until March 31, 1912.

'Newington.'

The *Newington* is an iron screw vessel built in Hull, G.B., in 1889, and purchased by the department in 1908. She is 115.3 feet long, 21 feet wide, 11.5 feet deep; 61 net, 93 gross tonnage, and 58 horse-power.

She was constantly employed in British Columbia waters in the lighthouse and buoy service during the fiscal year.

This vessel was in dry dock undergoing repairs and painting from August 10 to September 21.

'Leebro.'

The *Leebro* is a steam vessel, 123.5 feet long, 28.8 feet wide, 11.1 feet deep; 323 gross, 198 net tonnage, and 22 horse-power. She was chartered by the department from May 19 to August 15. On December 4 she was again chartered for the light-house and buoy service in British Columbia waters until the close of the fiscal year.

MONTREAL DISTRICT.

'Maisonneuve.'

The *Maisonneuve* is a wooden steamer, built in Smith's Falls, Ontario, in 1894; was first called the *Gladys*; is 75.7 feet long, 9.7 feet wide, 7.3 feet deep; 18 net, 26 gross tonnage, and 9 horse-power.

She is employed in the lighthouse and buoy service under the control of the Montreal agency of this department.

'Vercheres.'

The tug *Vercheres* was employed in the lighthouse and buoy service of Montreal agency during the year. She had repairs made on her, amounting to \$1,637.61.

'Acetylene.'

This vessel is principally employed in the gas buoy service in the Montreal agency.

'Shamrock.'

The *Shamrock* is a single screw wooden vessel, built in Quebec in 1898. She is 117.3 feet long, 25 feet wide, 9.7 feet deep; 237 gross, 161 net tonnage, 61 horse-power.

She is employed in the buoy service under the control of Montreal agency.

NOVA SCOTIA DISTRICT.

'Lady Laurier.'

The *Lady Laurier* is a twin screw steel vessel, 214.9 feet long, 34.2 feet wide, 17.2 feet deep; 413 net, 1,051 gross tonnage, and 186 nominal horse-power. She was

built in Paisley, Scotland, in 1902, and is employed in the lighthouse and buoy service in the Halifax agency of this department.

At the beginning of the fiscal year she left for St. John, N.B., for buoys and moorings, and continued in the buoy work until July 30, when she was ordered to proceed to the assistance of H.M.C.S. *Niobe*, ashore at Southwest Ledge. In conjunction with other vessels succeeded in towing the warship to Halifax.

On October 20, while on her way back from Sable island where she landed supplies and shipped a number of ponies, she lost two blades of port propeller.

She arrived in Halifax on the 22nd, where she was scraped, cleaned and painted; and on November 4 was towed to the Marine railway, Dartmouth, where she remained until the 9th, when she was towed to dockyard, where she remained until December 22. She again began the buoy and lighthouse service. When anchored near Barrington lightship in January 17, in very stormy weather, she took ground, began to take water and had consequently to be beached at Negro harbour.

The government steamers, *Montmagny* and *Aberdeen*, came to her relief, pumped her and she was towed from the bank on January 20, 1912; landed pumps and was put on the slip. Her bottom was examined, damage done to her keel repaired, and extensive repairs to electric apparatus, decks, engines and boilers were made.

She was taken off the dock on February 20, coaled, and during the remainder of the fiscal year was employed in her ordinary service.

‘*Aberdeen.*’

The *Aberdeen* was laid up on the Marine slip, Dartmouth, to have old boilers taken out and new ones put in. She was taken to Halifax dockyard, June 17, to be thoroughly overhauled.

She was put in commission on July 27, and conveyed machinery for dogfish plant to Canso. Went to assistance of *Niobe* on July 30, took machinery on board for service in relieving that vessel. She was employed during the season in laying cable, in buoy service and delivering lighthouse supplies and machinery, to different stations. This steamer was also employed during the winter months in buoy service on the coast of Nova Scotia and Bay of Fundy. In the fall she lifted the coast buoys around the coast of Prince Edward Island.

NEW BRUNSWICK DISTRICT.

‘*Lansdowne.*’

The *Lansdowne* is a wooden steamer, built at Maccan, N.S., in 1884. She is 185.6 feet long, 32.1 feet wide, 15.8 feet deep; 463 net, 680 gross tonnage, and 80 nominal horse-power.

She is employed in the lighthouse and buoy service under the control of the New Brunswick agency of this department, and was constantly employed from the first of the fiscal year until July 5, when she was placed on Hilyard's blocks, St. John, for annual overhaul and repair. She was taken off the blocks on July 30 and resumed her regular service.

When entering Beaver harbour, N.S., on September 5, in a thick fog, the ship struck bottom, causing her to leak. She sailed for St. John on the 6th and was placed

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on Hilyord's blocks for repairs, under the supervision of Mr. McConkey, Ships-husband. She was taken off the blocks on the 21st and continued her work until October 6, when she was hauled on Kennedy's slip to have her propeller examined. She remained on the slip until the 14th, after which she was continually employed in the buoy service until March 28, 1912 when she was laid up at Ballast wharf for engine repairs.

'Stanley.'

The *Stanley* is a single screw steel vessel, built in Govan, G.B., in 1888, especially for winter navigation in the Strait of Northumberland. She is 207.8 feet long, 32.0 feet wide, 17.9 feet deep; 394 net, 914 gross tonnage, 300 nominal horse-power and 2,100 indicated.

The *Stanley* was in Halifax at the beginning of the fiscal year, and on April 13 went to Dartmouth. She had her bottom scraped and painted, tanks cleaned, decks and davits scraped and painted and other minor repairs made. She sailed from Halifax on May 18 and entered Prince Edward Island buoy service.

Having completed the placing of Prince Edward Island coast buoys, she sailed for Halifax on June 6 and was constantly employed in the lighthouse and buoy service until January 14, when she went to the rescue of the barque *Calburga*, which was caught in ice off Digby, N.S., and after some trouble and delay succeeded in relieving her.

The *Stanley* sailed from Digby to North Sydney on January 16, 1912, to break ice in the harbour, struck bottom but did not sustain any injury. She sailed for Amherst and Grindstone islands on the 21st, got mails, landed at the former place, anchored off Grindstone island. On the 22nd sailed for North Sydney with mail. She was taken to St. John on February 10, had boilers cleaned and sailed on the 19th.

She returned to North Sydney on March 7, coaled and proceeded to Sydney harbour to break ice; and having finished icebreaking there and at North Sydney, she sailed for Magdalen islands with 69 bags mail on March 12. While in heavy ice on the 14th the chain of the steering gear broke and she was compelled to return to North Sydney to have it repaired. She left for Magdalen islands and reached Grindstone island on the 21st, landed and received mails, again encountered heavy ice and returned to North Sydney on the 26th and to Halifax on the 29th, where she remained to the end of the fiscal year.

ONTARIO DISTRICT.

'Reserve.'

The *Reserve* is a screw wooden steamer, built in Buffalo, N.Y., in 1884, is 61.8 feet long, 15.3 feet wide, 4.8 feet deep; 36 net, 49 gross tonnage, and 30 horse-power, and is employed in sweeping the channel, towing and attending the buoys under the control of the Dominion Lighthouse depot, Prescott.

'Lambton.'

The *Lambton* is a single screw steel vessel of 89 horse-power, built in Sorel, P.Q., in 1909, is 108 feet long, 25.1 feet wide, 12.7 feet deep; 323 gross and 182 net tonnage.

She is employed in lighthouse construction and superintendence.

'*Simcoe.*'

The *Simcoe* is a steel, twin screw vessel of 217 nominal horse-power, that was built by Swan, Hunter and Wingham, Richardson Limited, Wallsend-on-Tyne, G.B., in 1909. She is 180 feet long, 30.2 feet wide, 15.2 feet deep; 193.8 net and 437.63 gross tonnage.

She is employed in the lighthouse and buoy service in the great lakes and Georgian bay.

'*Scout.*'

The *Scout* is a wooden, single screw vessel of 27 horse-power, built in Cardinal, Ontario, in 1900. She is 103.6 feet long, 25.6 feet wide, 9.2 feet deep; 70 net, 176 gross tonnage. She is employed in the lighthouse and buoy service under the control of the Dominion Lighthouse depot, Prescott.

Her boilers and machinery were inspected by Inspector Ferguson in February, 1911, and repairs suggested by him made. Her hull, also, was inspected by Thomas McConkey, Ships-husband, on January 30, 1911, and temporary repairs ordered pending a more thorough examination in dry dock. She was docked at Kingston, Ontario, for this purpose in June and thoroughly examined by Mr. McConkey, who reported that she was unseaworthy, unfit for the carrying of heavy loads in rough weather and not worth extensive and costly repairs; but he ordered temporary repairs made to enable her to do light work in fair weather.

NEW STEAMERS.

A new steamer, to be named the *Estevan*, is under construction for the British Columbia light house and buoy service. This vessel is being built by the Collingwood Shipbuilding Company, and building is progressing under the supervision of Mr. Duguid, the marine architect of the department.

Another steamer, to be named the *Dollard*, is being built for buoy service in the St. Lawrence river between Montreal and Quebec. This vessel is being built by the Kingston Shipbuilding Company, who are also building a steamer, to be named the *Bellechasse*, for service in the ship channel of the St. Lawrence river.

REPORT OF ICE-BOATS AT CAPE TRAVERSE, P.E.I., AND CAPE TORMENTINE. N.B.

The ice-boats were in commission from January 31 to March 26, 1912.

Thirteen ice-boats were repaired, 12 tinned, 3 new boats built and 6 old boats condemned.

METEOROLOGICAL SERVICE AND MAGNETIC OBSERVATIONS.

Two hundred and eighty persons received pay for various duties performed during the fiscal year—an increase of 29 over the preceding year. Of this number, 30 were employed in the central office—an increase of 5. 41 were paid salaries as observers at telegraph reporting stations, 100 for displaying storm signals and 109 for observations at outlying stations. Only those at the head office and principal outside stations

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devote their whole time to the service; the others devote but a portion, and receive generally but small remuneration.

Forty-seven new stations have been established during the year: 6 in British Columbia, 7 in Alberta, 10 in Saskatchewan, 1 in Manitoba, 7 in Ontario, 7 in Quebec and 9 in Nova Scotia.

There are now 518 meteorological stations under the control of the central office at Toronto; and, as there are only 250 outside officers in the pay of this service, 268 persons throughout the Dominion gratuitously conducted regular and valuable observations.

Much importance is attached at headquarters to the development of the synchronous weather-chart and the establishment of a physics laboratory for atmospheric research.

Weather forecasts were issued twice a day from the central office at Toronto and (for British Columbia) from Victoria. Verification percentage of 86.1 were reached in the one and 84.7 in the other. There were 110 storm-signal stations in operation at the close of the calendar year, from which 2,610 warnings were issued, 92 per cent of those predictions were verified, and their value continues to be more appreciated by mariners, pilots, fishermen and shippers.

MAGNETIC OBSERVATORY.

The Magnetic Observatory at Agincourt, Ontario, made uninterrupted records of declension, horizontal force and inclination. A Toepfer earth inductor was installed in February, 1912, and used as the standard of inclination. Magnetic disturbances were recorded, the constants of magnetometer 146 of the Hydrographic survey branch determined, 90 theodolites with magnets compared, and Dominion Observatory instruments compared with those of Agincourt.

The magnetic survey of Hudson bay, started by Mr. W. E. W. Jackson in the summer of 1911, was unsuccessful owing to a leak in his vessel.

The seismographs recorded many disturbances during the year: the one at Toronto recorded 85, that at Victoria, 73. Much interest is being taken in earthquakes. Thirteen additional seismographs have been installed throughout the world, and the British Association is studying results of data obtained.

Eighty-eight determinations of time have been made. Time has been transmitted by telegraph and telephone lines, chronometers and watches compared and regulated. The time exchanges between Toronto and Quebec, Montreal and St. John, were regularly made and errors of clocks computed.

Solar observations were made on 108 days during the year ending March 31, 1912. Forty-seven of those observations showed spots on the sun, maps of which have been made; and the remaining 61 showed the sun clear of spots.

The work at the St. John, N.B., observatory is growing in volume and usefulness. Reports are telegraphed twice each day to Toronto at 9 a.m. and 9 p.m., Atlantic time. The wind station at Point Lepreaux sends reports weekly to St. John, where they are carefully analysed. Observations are made on clear nights to determine clock errors. Daily time-signals are sent over telegraph wires to all parts of the maritime provinces by automatic clock arrangements. Wireless time-signals are

sent from Camperdown, N.S., by a contrivance which automatically repeats the time-signals from land lines to wireless instruments by which they are sent to ships fitted to receive them and have their chronometers checked.

The electric clock at Halifax was installed in the Western Union's new office, and electrical connections with time-ball improved. When dismantled the clock was overhauled and repaired, and in its new position gives good satisfaction.

The Quebec Observatory conducted the usual meteorological and astronomical observations.

The correct time was given, chronometers rated and a new meteorological station established at Cap Rouge experimental farm.

The central office officials made their customary inspections, had instruments tested, repairs made and observers instructed.

The Director's annual report forms an appendix to this report.

MONTREAL HARBOUR COMMISSION.

The Harbour Commission of the port of Montreal is comprised of Major George W. Stephens, president; L. E. Geoffrion, Esq., and C. C. Ballantyne, Esq., commissioners.

The secretary-treasurer of the commissioners is David Seath, Esq.

The jurisdiction of the commission extends from Bout de l'Isle to above Victoria bridge, a distance of 17 miles.

Twelve thousand acres of water and 200 acres of improved land are under the control of the commission.

The harbour was opened for navigation on April 23, which was 22 days later than on the previous year; and closed on December 29, 22 days later than in 1910, which left the open season the same.

The revenue of the port of Montreal for the year 1911 was as follows: Wharfage dues on imports, \$256,373.33; wharfage dues on exports, \$103,549.29; switching of cars, \$147,291.74; wharfages local traffic, \$105,146.11; Grain Elevator No. 1, elevating charges, \$112,573.18; rental of harbour sheds, \$100,499.97; floating grain elevators, \$45,111.25; rental of harbour tracks and properties, \$33,949.42; floating crane, \$7,128.60; interest Laporte bridge, \$632.34; making a total on revenue account of \$912,255.23. Amount of Dominion Government loan, \$2,315,000; balance from 1910, \$393,263.61—which makes the total receipts \$3,656,930.44.

The expenditure on revenue account was \$884,070.29. Of this amount, \$503,979.58 was for interest, and \$57,360.47 for property purchased for a new harbour yard and buildings.

The expenditure on capital account was \$2,334,119.03:—

Grain Elevator No. 2 and jetty.	\$963,152 46
New Victoria pier and market basin.	326,057 66
Improvements eastern section.	259,069 35
High level railway.	187,640 22
Permanent sheds, Tarte pier.	92,389 56
Permanent shed, Victoria pier.	69,206 39
Sundry items.	436,603 39

\$2,334,119 03

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Loans on public account of \$2,315,000 was received from the Dominion Government.

The debenture debt of the corporation on December 31, 1911, was \$16,607,000, of which \$1,872,000 is to the public and \$14,735,000 to the Dominion Government upon which the average rate of 3.31 per cent is paid.

Four hundred and one transatlantic vessels, having a total tonnage of 1,695,613 tons, arrived in the harbour during the season.

This shows an increase of 40,199 tons register over the previous season.

Three hundred and sixty-one vessels, with a total tonnage of 642,639 tons register, arrived from the lower St. Lawrence and maritime provinces, an increase of 35 vessels and 67,831 register tons. The foregoing, in addition to 11,670 vessels plying on inland waters, make a total of 12,432, having a total of 6,613,271 tons register, arrived at the port of Montreal during the season of 1911, showing an increase of 52,250 tons over the previous season and the greatest tonnage for ten years; but a decrease of 2,951 vessels from those entered in 1910.

Harbour extension work has been done; a new quay 393½ feet long was built in front of Elevator No. 2, and a foundation for a new marine tower jetty. The Victoria and Berri street subway were completed; a double track was laid on the high level railway; Victoria quay wall was completed, also a high level retaining wall between Victoria pier and market basin, and a new quay wall 935 feet long was built at the market basin.

The most important work begun was the preparing a site for the new floating dock being built in England for the Canadian Vickers Limited Company.

The harbour commission is supplying the protected basin and 30 acres of land for a shipyard.

QUEBEC HARBOUR COMMISSION.

Quebec harbour was open all winter, and the *Montcalm* and *Lady Grey* plied between Quebec and cap Rouge. The tidal basin ice broke up on April 9, and navigation for all classes of vessels was general on April 11.

Besides a large number of steam barges, schooners and other smaller vessels, 640 ocean-going steamers docked in Louise docks and Point à Carcy wharfs. 392 vessels of 1,723,630 tons register and 348,486 tons cargo entered at the St. Charles docks, which included 218,306 tons bituminous and 48,817 tons of anthracite coal.

Ninety-one vessels of 360,054 tons register, with cargoes of 44,801 tons; 579 head of cattle, 26,511 P.S. lumber and timber left the same docks during the year, while 7,463 tons of general cargo, 1,568,168 bushels of grain, 26,377 railway ties, 14,832 cords of pulpwood, were shipped from the 'Lower ports.'

The revenue for the year 1911 was \$122,425.81—an increase of \$1,388.97 over that of the previous year. A surplus of \$15,498.32 was shown.

The expenditure on capital account was \$149,656.82, as compared with \$110,392.40 the previous year, but \$51,315.20 was spent in the purchase of a vacant lot of 10,000 square feet adjoining East Indian wharf.

THREE RIVERS HARBOUR COMMISSION.

The Harbour Commissioners of Three Rivers are: P. A. Drolet, Esq., chairman; Joseph L. Fortin, Esq., L. P. Normand, Esq., L. E. Dufresne, Esq., J. A. Peltier, Esq.; George Balcer, Esq., secretary-treasurer.

The wharf accommodation extends from the west bank of the St Maurice river to the icebreaker, a distance of about 5,500 feet.

The total revenue, including balance from the previous year, &c., was \$35,956.56, and the total expenditure, \$17,763.14; leaving a balance on hand of \$18,193.42.

TORONTO HARBOUR COMMISSION.

The harbour opened on March 31 and closed on December 8.

The harbour buoys were put out on April 3 and taken up on December 7.

Three thousand one hundred and ninety-two vessels, with a registered tonnage of 1,649,887 tons, entered during the year 1911.

Seventy-five vessels, besides scows and other smaller vessels wintered at the port; in all about 21,827 register tons.

Eighty-three thousand two hundred and seventy-nine tons general merchandise, 126,229 tons coal, 1,037,000 B.M. of lumber, 1,500 bushels grain, 2,560,000 brick, 368,000 scoria blocks, 7,898 tons ice, 184 barrels fruit, 9,680 crates fruit, 493,471 baskets fruit, 12,038 toise stone, and 101,898 barrels oil arrived at the port during the year ending December 31, 1911.

Thirty-eight thousand and sixty-two cubic yards of dredging was done at different sections of the harbour. A channel has been dredged through the bar, 200 feet wide on top and 600 feet in length, at the entrance of the eastern channel to a depth of 20 feet below zero, and 650 feet of concrete superstructure has been placed on the north end of East pier of eastern channel.

A channel 400 feet wide and 18 feet deep has been cut through the land bar at the western entrance; and the North pier, 2,200 feet long and 20 feet wide, has been completed.

The receipts for the year were \$11,826.38, and the expenditure, \$12,950.66.

BELLEVILLE, ONT., HARBOUR COMMISSION.

The receipts for the year ending December 31, 1911, were \$2,023.78. The expenditure, \$1,885.06, and the balance on hand, \$138.72.

The amount deposited to the credit of the sinking fund is \$3,389.26.

PICTOU HARBOUR COMMISSION.

The commission remains unchanged since last year, being J. R. Brown, Esq., chairman; W. A. McIntosh, Esq., J. C. Reid, Esq.; Henry G. Ives, Esq., secretary. Their report will be found in this report.

NORTH SYDNEY HARBOUR COMMISSION.

A new Harbour Commission composed of Messrs. James Bissett, Arthur McDermaid and Kenneth McLeod, was appointed on May 13 last, and Mr. McLeod, who

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also acts as secretary, acknowledges receipts of all books, papers and funds from the late commission.

The receipts for the calendar year ending December 31, 1911, are \$7,201.28, the expenditure \$5,624.24, and the balance on hand \$1,577.04.

The total number of vessels of all kinds which arrived at the port during 1911 was 2,220, having a tonnage of 1,811,223 tons register, and carrying a crew of 38,181 men.

The coal shipped amounted to 2,391,905 tons, and the steel rails to 73,085 tons.

The Dominion Iron and Steel Company, Limited, imported 73,085 tons iron ore, limestone and other materials.

The report of the North Sydney Harbour Commission forms an appendix to this report.

WRECKING PLANT.

The yearly subsidies were paid to contractors when they became due and proof shown of the maintenance of the plant in readiness to render assistance in cases of casualties to vessels. The amount of the subsidy to each contractor is \$10,000 per annum, paid semi-annually.

The contracts were made for a period of five years with each contractor. For the lower St. Lawrence, the contract was made with Messrs. Geo. T. Davie & Sons, Levis, P.Q., headquarters of the salvage plant at Quebec; for the maritime provinces, with the Dominion Coal Company, headquarters of the salvage plant, North Sydney, C.B.; for British Columbia, the British Columbia Salvage Company, headquarters for the salvage plant, Victoria.

The following is a list of vessels assisted or salved by the plant of the Dominion Coal Company, Limited, during 1911-12:—

DOMINION COAL COMPANY, LIMITED.

Work done in connection with wrecking plant from April 1, 1911, to January 1, 1912:—

May 1, 1911.—American fishing schooner *Arkona* went ashore on Battery shoal, Louisburg harbour, and was pulled off by tug *Douglas H. Thomas*.

May 9.—Schooner *Elva M.* went ashore on Barrachois shoal, Sydney harbour; pulled off by tug *Douglas H. Thomas*.

June 27.—Tug *Douglas H. Thomas* pumped out schooner *Walkyrien* at Port Hawkesbury and uprighted her.

June 29.—Steamer *Heathcote* went ashore near the entrance of Big Bras d'Or lake. Tug *Douglas H. Thomas* went to her assistance and succeeded in floating steamer on July 1.

June 16.—Steamer *Ben Earn* with cargo of coal went ashore at cape Negro, Shelburne. Tugs *Douglas H. Thomas* and *Springhill* and steamer *Cabot* were despatched to her assistance immediately. Steamer was in such an exposed position that she broke up in the heavy seas and became a total loss. Steamer *Cabot* salved about 1,000 tons of her cargo.

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July 30.—Received telephonic request from Department of Marine and Fisheries at Halifax for assistance to stranded H.M.C.S. *Niobe*, reported ashore on southwest ledge of cape Sable. Despatched before arrival of *Cacouna* at cape Sable. Had two tug boats and four steamers in readiness to proceed should their services be required.

August 2.—Tug *Douglas H. Thomas* was despatched to Lawn, Newfoundland, to tow disabled tug *Progress* from there to North Sydney. After *D. H. Thomas* had sailed, received word disabled tug had made temporary repairs and proceeded to St. John's.

August 3.—Despatched SS. *Cacouna* to assistance of stranded steamer *Cambodia*, ashore at Flag island, Canso, but steamer floated before arrival of *Cacouna*.

September 19.—Barque *Record* went ashore on Main à Dieu bar. Tug *Douglas H. Thomas* went to her assistance, and after great difficulty managed to take crew off. Tug stood by for long period but on account of high sea running nothing could be done to assist barque.

September 30.—Heavy gale drove schooners *Grand Master*, *Coronation*, *James A. Gray*, *Swift Current*, *Colonel Otter* and tug *Alert* ashore in Sydney harbour. Tug *Douglas H. Thomas* pulled them all off and towed them to places of safety as required by their different masters.

Yacht *Bras d'Or* broke away from her mooring in Sydney harbour and sank during same gale. Tug *Douglas H. Thomas* with assistance of divers raised her from the bottom, pumped her out, and towed her to place of safety.

October 13.—Despatched tug *Douglas H. Thomas* to assistance of schooner *Erick*, ashore in Aspy bay. After tug had worked at her for considerable time, she was forced to abandon her on account of vessel's difficult position.

October 23.—Steamer *Halvden* with cargo nitrate of soda went ashore on Four-fathom patch, thirty miles west of Louisburg. Despatched tug *Douglas H. Thomas* immediately to scene, but on tug's arrival steamer broke up in heavy sea. Her captain and crew were taken off by tug.

October 26.—Schooner *J. C. Dakin* went ashore at Barrack point, and was pulled off by tug *Douglas H. Thomas*.

The services rendered by the plant of Messrs. Geo. T. Davie & Sons:—

Assistance to M. P. & J. T. Davis' *Caisson* from graving dock to Quebec bridge.

Assistance SS. *Lake Champlain* from Montreal to Quebec. These services were performed by steamer *Lord Strathcona*.

Salvage services rendered during the year 1911 by the British Columbia Salvage Company.

January 26 and 27.—SS. *Tees* ashore near Wreck bay, west coast Vancouver island.

February 3.—SS. *Titania* ashore near Turn point, Stuart island.

January 26.—SS. *Cottage City* sunk near cape Mudge.

April 12 to 25.—SS. *Vadso* in Rivers inlet, B.C.

June 30 to August 1.—SS. *Spokane* sunk in Plumpers bay.

October 15 to 22.—SS. *Princess Beatrice* ashore on Noble island.

October 23.—SS. *Dirigo* ashore in Victoria harbour.

November 29 to December 4.—SS. *Tees* in trouble off the west coast Vancouver island.

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WRECKS AND CASUALTIES.

Two hundred and twenty-five sea-going vessels were reported as wrecked, partially wrecked, suffered serious or slight damages to ship, rigging or cargoes.

The tonnage in this way affected was 83,366, the total damage reported was 461,180, and the number of lives lost 7. Of the total number of vessels, 70 were total wrecks with a loss of \$280,059, while 42 vessels were very slightly, or not damaged, having in most instances been stranded in storms and escaped without any material harm. One hundred and thirteen vessels were partially wrecked with a loss of \$181,121. Seventeen vessels were reported as totally wrecked in inland waters, with a loss of \$227,700; 91 were partially wrecked with a loss of \$105,400 and 12 vessels slightly damaged, or in some instances incurring no loss. The number of vessels affected was, therefore 38 vessels of 52,021 tons, loss \$333,100, and no lives lost.

The report of wrecks and casualties for the year ending December 31, 1911, will be found in an appendix to this report.

MONTREAL PORT WARDEN.

Navigation opened on April 26, when the *Lady of Gaspé* arrived from Quebec.

The first ocean steamer arrived in the port on April 29.

The first vessel passed through the Strait of Belle Isle on April 29.

The last ocean-going ship sailed from Montreal on December 3.

No ocean-going sailing vessel left port during the year.

Three hundred and ninety-eight transatlantic vessels reported at the Port Warden's office during the year, with a tonnage of 1,714,354 tons.

Three hundred and fifty-two vessels of all classes, with a total tonnage of 637,431 tons, entered from the lower ports—an increase of 19 vessels and 66,726 tons.

One hundred and eight vessels cleared for the lower ports, having a tonnage of 85,708 tons—an increase of 9 vessels and 12,027 tons over last year.

There was a total increase of 2,575,985 bushels of grain shipped at Montreal.

PILOTAGE.

Annual returns have been received from thirty pilotage authorities. They are published in appendices to this report, and show the names of the pilotage commissioners, pilots, number and tonnage of vessels piloted, the receipts and expenditures for the calendar year 1911. The total number of pilots employed, according to those returns, was 313; and the total receipts, \$446,423.37.

A table showing the name of each pilotage district, its secretary, number of pilots and receipts is attached to the report on pilotage in this report.

MASTERS AND MATES.

The report of Captain H. St. G. Lindsay, Chief Examiner of Masters and Mates, forms an appendix to this report, and shows that 208 applicants for masters', 179 for

mates' certificates of competency and 26 for masters' temporary certificates were examined.

The receipts from fees were \$3,970; the expenditure on the service, \$7,226.54.

SHIPPING AND DISCHARGING OF SEAMEN.

Fewer returns have been received than for the previous year. The returns from the provinces are as follows:—

	Seamen Shipped.	Seamen Discharged.	Fees Collected.
			\$ cts.
Quebec.....	2,631	1,970	1,916 50
New Brunswick.....	1,807	783	1,138 40
Nova Scotia.....	4,914	5,634	4,864 20
British Columbia.....	4,164	2,796	3,434 70
Prince Edward Island.....	192	107	127 60
Total.....	13,708	11,290	11,481 40

A full statement of the seamen shipped and discharged as sent in returns by shipping masters will be found in an appendix to this report.

MARINE SCHOOLS.

Marine schools were in operation two months in the winter at Halifax, N.S., North Sydney, N.S., Yarmouth, N.S., Collingwood, Ont., Victoria and Vancouver in British Columbia and in the city of Quebec.

Lectures bearing on navigation, seamanship and routine work on sea-going and coasting vessels were delivered at the first six schools; and men were taught subjects requisite to qualify for masters' and mates' certificates, at the school held in the city of Quebec. 156 lectures were delivered, and the total attendance was 1,733; but Vancouver school, alone, furnished 707 of this total attendance, and is the only one that shows a continued and fitting appreciation of the department's efforts to teach the theory and practice of navigation.

The report of Captain Lindsay, superintendent, forms an appendix to this report.

SICK AND DISTRESSED MARINERS.

Under the provisions of the Canada Shipping Act, chapter 113, Part V, s. 384, R.S., dues of 1½ cents per ton, registered tonnage, are levied on every vessel entering any port of the provinces of Quebec, Nova Scotia, New Brunswick, Prince Edward Island and British Columbia. The money thus collected forms the 'Sick Mariners Fund.' Vessels of the burden of 100 tons and less pay duty once in each calendar year, and vessels of more than 100 tons, registered tonnage, three times in each year.

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The officers and seamen of all fishing vessels not registered in Canada do not pay sick mariners dues nor participate in the benefits accruing therefrom, but such vessels registered in Canada may pay dues and participate in the benefits, and if of more than 100 tons only for the voyage at the beginning of which payment has been made, but such vessels shall enjoy the same rights and benefits as are enjoyed by vessels which pay dues and are not engaged in fishing.

The Sick Mariners Act does not apply to the province of Ontario, so no dues are collected from vessels in that province.

At the port of Quebec sick mariners are cared for at the Jeffery Hale and the Hotel Dieu hospitals at a per diem allowance of \$1.50 per seaman, including medical attendance and board.

At the port of Montreal sick seamen are cared for at the General hospital and at the Notre Dame hospital—the charge per diem at each institution being \$1.50 per seaman, including board and medical attendance, and infectious cases are attended at the Alexandra hospital.

At the port of Three Rivers, sick mariners are cared for at the St. Joseph's hospital, at a per diem rate of 90 cents for each seaman. The medical officer receives \$300 per annum for his services.

At the port of Chicoutimi, P.Q., sick seamen are cared for at the hospital of St. Valier, at a per diem charge of \$1.20 per seaman, including board and medical attendance.

At the port of St. Johns, P.Q., sick seamen are attended at the St. John hospital, at a cost of 90 cents a day. The medical officer receives a salary of \$600 a year.

Marine hospitals are maintained at Louisburg, Yarmouth, Pictou, Sydney and Lunenburg in the province of Nova Scotia; and sick seamen at Halifax, N.S., are cared for in Victoria General hospital at \$1.50 a man per day, including board and medical attendance.

At North Sydney, sick seamen are attended at the Hamilton hospital at \$1 per day each. The medical officer receives \$750 per annum for drugs and medical attendance.

At Windsor, N.S., sick mariners receive treatment at the Payzant Memorial hospital at \$5 per week for each man. The medical officer receives a salary of \$120 a year.

At Amherst, N.S., sick mariners are cared for at the Highland View hospital for \$4.50 a week each.

Sick seamen of Parrsborough, N.S., are cared for at the Cottage hospital, Springhill, N.S., for 90 cents each per day.

At Victoria, B.C., sick seamen are treated at the St. Joseph hospital for \$1.40 each per day. The medical officer receives a salary of \$600 per annum.

At Vancouver, B.C., sick seamen are attended at St. Paul hospital for \$1.50 per day each.

At Nanaimo, B.C., sick seamen are treated at the Nanaimo hospital for \$1 per day, board, lodging and nursing. The medical officer receives \$600 per annum.

At New Westminster, sick seamen are attended at the Royal Columbian hospital for \$1 a day, including board and medical attendance.

At Chemainus, B.C., sick seamen are attended at the General hospital for \$1 a day, the medical officer receiving \$400 per annum.

At St. John, N.B., sick seamen are treated at the General Public Commissioners' hospital for \$1.50 per day.

At Campbellton, N.B., sick seamen are treated at the Hotel Dieu hospital for \$5 a week each, the medical officer receiving a salary of \$350 per annum.

At Moncton, N.B., sick seamen are treated at the Moncton hospital for \$4 a week, the medical officer receiving a salary of \$200 per annum.

A marine hospital is operated and maintained by the department at Douglastown, N.B., the medical officer receiving a salary of \$400 and the keeper \$250 per annum.

Where no hospital is maintained in any part of the Maritime Provinces, Quebec or British Columbia, the collectors of customs are authorized to care for sick seamen entitled to receive the benefits of the fund.

Statement of receipts and expenditure on account of 'Sick and Distressed Seamen' from the fiscal year 1900 to 1911, both inclusive:—

Year.	Receipts.	Expenditure.
1900..	\$59,971 84	\$32,743 30
1901..	59,783 34	34,944 93
1902..	65,853 83	51,827 12
1903..	64,851 55	48,151 48
1904..	61,778 29	50,801 78
1905..	58,372 34	51,000 18
1906..	60,183 90	50,120 42
1907..	44,704 59	34,362 11
1908..	69,364 45	59,957 92
1909..	53,732 31	66,349 26
1910..	55,567 41	54,859 50
1911..	60,637 11	54,779 27

The total amount of salaries paid to medical officers during the year 1911 was \$14,660.75. The number of seamen treated was 3,012, being 222 less than the number treated in 1910 and 617 less than treated in 1909, while the number of days treatment was 26,095. The total amount spent for services of physicians, not including salaries, travelling expenses, drugs and board, was \$34,621.23.

The report of Dr. C. H. Godin, Medical Superintendent of Marine Hospitals, forms an appendix to this report.

SABLE ISLAND HUMANE INSTITUTION.

The report of R. Boutilier, Superintendent of Sable Island Humane Institution, contains information respecting wrecks, patrol, staff, repairs, farming, stock on hand and killed; stock and produce shipped or ready to ship, and an inventory of sailors' clothing and bedding.

No wreck is reported, and only two steamers stranded during the year ending December 31, 1911.

A new 'Beebe-McLellan' self-bailing lifeboat was received at No. 1 station at the beginning of the year, and the old 'Beebe' surfboat transferred to station No. 4.

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The island was patrolled 63 times in the morning and 28 times in the evening.

Two lifeboats were painted, warehouse and barn repaired, seven miles of telegraph wires stretched, one mile of new poles erected and the buildings at each station inspected, and repaired where necessary.

Two hundred and seventy-two bushels of vegetables, of which total 150 were mangel wurtzels and 75 bushels potatoes; 120 tons of hay were stored.

The stock killed consisted of 8 beeves, 5,583 pounds; 7 calves, 420, and 6 hogs, 900 pounds; and the stock on hand, 68 cattle, 30 horses, 2 imported mares, 2 imported stallions, 6 colts from imported stock, 200 wild ponies and 5 hogs.

The exports were 72½ barrels cranberries, 31 ponies, 1 working horse, and 5 barrels salted hides.

The total staff consists of 46 persons.

The report of the superintendent forms an appendix to this report.

INSPECTION OF LIVE STOCK SHIPMENTS.

The reports of inspectors of live stock shipments for Montreal, P.Q., and St. John, N.B., show that 3,725 sheep, 45,966 cattle and 138 horses were shipped from Montreal; and 1,798 sheep, 2,001 cattle and 14 horses from St. John—a total of 5,523 sheep, 47,967 cattle and 152 horses. 320 U.S. mules were shipped from Montreal, 424 from St. John—a total of 744; and 15,691 U.S. cattle shipped from Montreal, 1,881 from St. John—a total of 17,572.

CORRESPONDENCE AND RECORD BRANCH.

The records branch of the department embraces the receiving and despatching of letters. The letters and telegrams received are registered, numbered, stamped with date received, indexed, placed on files, and the files charged and distributed to the officers who take action upon the letters and telegrams. Copies of letters are placed upon the files, and the files examined to ascertain if all letters have been answered or acknowledged, and then they are discharged and placed in receptacles.

The registering of letters consists of entering the number of the file and a brief synopsis of the subject of the letter; the indexing includes pages of personal names in a book, and the card system, locality names, subjects and vessel names. The number of communications received during the year 1911 was 49,064.

The letters and telegrams despatched are copied in letter press books and indexed. The number of letters despatched during the year was 38,000. The increase in the numbers of letters received and despatched during the last ten years shows the growth of the work of the department and consequent increase of staff, as a whole, including the records branch. An establishment book is maintained in this branch in which the names of all employees of the department are recorded.

The letters received in 1901 numbered 18,741 and despatched 13,000, while in the past year 49,064 were received and 38,000 despatched.

SIGNAL SERVICE.

The signal service of Canada as it is now established was carried on in 1911 as usual. The superintendent of the signal service at Québec has under his supervision a

number of stations in the Gulf and River St. Lawrence and Strait of Belle Isle. From these stations daily reports are received concerning the weather and movements of vessels. Ice conditions are also noted and reported in the season when moving ice forms a danger to navigation. Bulletins were issued at Quebec to vessel owners, agents and others interested in shipping, and telephoned to the Board of Trade, Montreal Shipping Federation and others. The quarantine station at Grosse Isle and the pilot station at Father point were daily informed of the movements of inward bound vessels.

The telephone service in connection with signal service extends from Montreal to Quebec, over a rented line and from Quebec to Crane island over the public service line. It has proven of great value to the dredging fleet and to pilots, who are kept informed of movements of vessels, doing away with the former uncertainty of the whereabouts of vessels and preventing delays to both vessels and pilots.

WORKSHOPS.

Workshops are maintained by the department at Sorel, Halifax, Quebec, Prescott, and Parry Sound. The workshops at Sorel are of course the most important as construction of vessels is carried on at the shipyard as well as the making of repairs to vessels. Several separate buildings have from time to time been erected for the proper division and performance of the work. The buildings consist mainly of the office, draughting room and general store, boiler shop, machine shop and power house for electric plant, blacksmith shop, joiner shop, boat building and general woodwork shop; sawmill, including planing machine and moulding machinery, pattern shop and vessel moulds and sail loft, tinsmith shop, building for storing vessel's equipment and stables. In addition, there is a fire equipment, a narrow gauge railway with sheds, also a railway track from the Sorel railway station for freight cars.

At the Dominion lighthouse depot, Prescott, the shops are mostly within the main building. It contains the main office, draughting room, photometric room where tests are made of lighthouse apparatus, carpenter shop, pattern shop, blacksmith shop, vapour lamp and erecting department, paint shop, shipping department and general store. The machine shop and acetylene department is each in separate buildings. The number of workshops at Quebec is seven, viz., the boiler shop and forge, machine shop, tinsmith and plumber shop, carpenter and boat shop, joiner shop, paint shop and sail loft.

At Halifax, the workshops are connected with the dockyard and are mainly a blacksmith shop, carpenter and boat shop, machine shop, paint shop and tinsmith shop. Extensive repairs are made to buoys and moorings and repairs to the machinery of the Dominion steamers.

At Parry Sound, the depot is mainly used for storing acetylene, gas buoys and lighthouse tanks and charging them with acetylene. The buoys and tanks are painted and prepared for placing in the spring; a few mechanics are consequently employed at this depot.

STEAMBOAT INSPECTION.

All passenger steamboats over five tons gross tonnage are subject to inspection yearly of boilers, machinery, hulls and equipment according to the rules of steamboat inspection.

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Every freight steamer of more than one hundred and fifty tons gross is subject to inspection yearly, according to the rules of steamboat inspection for boilers, machinery and hulls.

Freight steamers, tug-boats and steamers used for fishing purposes, under one hundred and fifty tons and more than five tons gross tonnage, are subject to inspection of boilers and machinery, according to the rules of steamboat inspection.

At present there is no fee charged for inspection except upon steamers registered elsewhere than in Canada when engaged in carrying passengers between Canadian ports and not holding a British Board of Trade certificate. The fee is then, in Canada, eight cents on the gross tonnage of such foreign steamer.

Canadian registered vessels inspected during the fiscal year numbered 1,833 gross tonnage, 509,129. Vessels inspected, but not registered in the Dominion, numbered 159; gross tonnage, 213,796 tons. The amount of fees collected for inspection was \$400,231.

The total expenditure in connection with inspection amounted to \$45,353.11, but part of this expenditure was for inspection of Dominion steamers and fog-alarms. The report of the chairman of steamboat inspection forms an appendix to this report.

STEAMBOAT INSPECTORS.

Edward Adams.. . . .	Ottawa, Ont.
J. A. Thomson.. . . .	Victoria, B.C.
H. G. Robinson.. . . .	Vancouver, B.C.
A. E. Hopper.. . . .	Vancouver, B.C.
W. J. Cullum.. . . .	Victoria, B.C.
G. P. Phillips.. . . .	Kenora, Ont.
J. Dodds.. . . .	Toronto, Ont.
J. B. Stewart.. . . .	Toronto, Ont.
E. W. McKean.. . . .	Collingwood, Ont.
T. P. Thompson.. . . .	Kingston, Ont.
W. Laurie.. . . .	Montreal, Que.
L. Arpin.. . . .	Montreal, Que.
F. X. Hamelin.. . . .	Sorel, Que.
N. A. Currie.. . . .	Halifax, N.S.
C. E. Dalton.. . . .	St. John, N.B.
J. H. Fontaine.. . . .	Quebec, Que.
G. M. Arnold.. . . .	Toronto, Ont.

HULL INSPECTORS.

J. C. Kinghorn.. . . .	Victoria, B.C.
W. Evans.. . . .	Toronto, Ont.
M. R. Davis.. . . .	Kingston, Ont.
P. Duclos.. . . .	Quebec, Que.
C. W. Seely.. . . .	Halifax, N.S.
I. J. Olive.. . . .	St. John, N.B.
S. D. Andrews.. . . .	Collingwood, Ont.

SHIPS TACKLE INSPECTORS.

J. M. Martin.	St. John, N.B.
A. Martin.	Montreal, P.Q.

LIFE-SAVING SERVICE.

The life-saving service of the department, in the past, has included a number of stations supplied with life-saving apparatus, considered sufficient to render ordinary assistance to vessels ashore or needing help, when in distress, along our shores. The boats are principally Beebe-McClellan self-bailing surf boats, and in a few instances Dobbins self-righting and self-bailing boats. But the latter were found to be too heavy for the number of men generally available for volunteer crews, who are only paid for annual drills and when assistance is rendered. The Beebe-McClellan surf boats have in late years been supplied the stations.

Total number of stations maintained is.	37
Total number of boats is.	35
Total number of crews is.	225

LEGISLATION.

The following Acts were passed and assented to during the First Session, Twelfth Parliament, 1-2 George V., viz.:—

An Act respecting the Harbour Commissioners of Montreal.

An Act to provide for further advances to the Harbour Commissioners of Montreal.

An Act to amend the Quebec Harbour Commissioners Act, 1899.

An Act to amend the Canada Shipping Act.

An Act to incorporate the Winnipeg and St. Boniface Harbour Commissioners.

A. JOHNSTON,

Deputy Minister of Marine and Fisheries.

APPENDIX No. 1.

ANNUAL REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT
OF MARINE AND FISHERIES.

The Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit the following report of the work done in the several services under the supervision of this office during the twelve months ended March 31, 1912.

This embraces work done at departmental headquarters on the construction of lighthouses, lightships and fog-alarms, the supervision of construction and repairs of lifeboats; the administration of the vote for the removal of wrecks and obstructions in navigable waters; and the publication, examination and correction of hydraulic charts; construction of and repairs to fish hatcheries and refrigerators; engineering points in connection with the construction and maintenance of fish-passes; supervision of surveys of oyster beds; examination of applications for foreshore, wharf and other water lots as they affect the interests of navigation; preparation and publication of notices to mariners and hydrographic notes, &c.

STAFF.

The following changes have been made during the year in the staff of my office:—

Mr. F. P. Jennings was sent from the office in February, 1911, to superintend the construction of the new departmental depot on Digby island, near Prince Rupert, and was still there at the end of the financial year.

Mr. J. L. O'Brien was temporarily employed as a draughtsman from July 12, 1911, to August 22, 1911, and Mr. L. A. Stewart from June 29, 1911, to September 30, 1911, in consequence of pressure of work.

Miss E. M. McCullough has been employed as typewriter since July 14, 1911, Miss L. M. Gay since July 17, 1911, and Mr. J. A. Breen since December 2, 1911.

Mr. E. J. Wight, draughtsman, resigned from the service on September 30, 1911.

Mr. W. H. Carson, engineer-draughtsman, was absent at Ile Parisienne, acting as inspector of work, from September 1, to November 21, 1911.

OFFICE WORK.

The largest part of the work done by the general staff of the branch consists in the construction, repair, or improvement of light buildings, fog-alarms, beacons and other aids to navigation, the supply of new or improved illuminating apparatus, &c., the payment of expenditures for these services being made out of the vote of \$1,000,000 for construction of aids to navigation. Full details of the work done in this connection during the past year are contained in a separate report in tabular form attached hereto, which gives a complete statement of all expenditure charged to the vote in question. (Inclosure A.)

In addition to the work of this branch done under the above vote, the staff have been called upon to perform work of varied description for other branches of the department, and which may be summed up as follows:—

For the Meteorological Service Branch.

Erection of 12 storm signal masts, in Nova Scotia.
 Erection of 1 storm signal mast at Shippigan, New Brunswick, cost \$129.47.
 Erection of 1 storm signal mast at Cobourg, Ontario, cost \$75.
 Erection of 1 storm signal mast at Paspébiac, Quebec.
 Repairs to 1 storm signal mast at North Sydney, Nova Scotia.
 Repairs to 1 storm signal mast at Port Arthur, Ontario.
 Removal of 1 storm signal mast at Glace Bay, Nova Scotia.

For the Maintenance of Wharfs Branch.

Repairs to wharf at Freeport, N.S.
 Repairs to breakwater at Cape Tormentine, P.E.I., at a cost of \$130.76.
 Repairs to wharf warehouse at St. John, N.B.
 Repairs to wharf at Paspébiac, Que.
 Repairs to wharf at Tadoussac, Que., at a cost of \$36.54.

For the Life Saving Branch.

Construction of a breakwater at Port Mouton, N.S.
 Construction of a slipway at life saving station, Escuminac, N.B.
 Construction of a dwelling, boathouse, slipway and roadway at Little Wood island, N.B.
 Construction of a bungalow at station, Richibucto, N.B.

For the Maintenance of Lights Branch.

Repairs to dwelling at Quaker island, N.S.
 Building buffers at corners of government wharf, Parry Sound, Ont., at a cost of \$31.64.
 Repairs to station, Discovery island, B.C.
 Repairs to station, Lennard island, B.C.
 Repairs to station, Race rocks, B.C.

A clerk has been detailed to look after the completion of the titles to all properties owned by this department, and as this includes over one thousand lighthouse sites, besides other properties scattered throughout the Dominion, and even in Newfoundland and the United States, the work has proved very heavy. The destruction by fire in 1897 of all the department's records has also complicated and retarded the work. My aim is ultimately to have on record a deed of every piece of property owned or leased to the department, or leased by the department, with registration in the local registry office as well as in the office of the Registrar General at Ottawa. In the case of all new properties acquired, expropriation plans and descriptions are filed in addition to the usual notarial deed, as an extra precaution.

The work in connection with applications for water lots also continues to be very heavy as will be seen by reference to the draughting room statistics. Every application has to be examined, entered on an index plan, plans and descriptions checked, and the proposition reported upon and valued. This involves a great deal of detail, and takes the full time of one draughtsman.

Plans and specifications for all important new buildings and repairs, new vessels, &c., are made or approved in this office.

The following table indicates the work done in the draughting office during the twelve months ended March 31, 1912:—

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Description of Work.	Plans Designed	Plans Received	Copies Made.
Lighthouse towers and dwellings.....	12	2	451
Fog alarm buildings.....	2	3	84
Details.....	46	23	997
Wharfs, piers, &c.....	4	11	24
Outbuildings.....	2	4	221
Machinery.....	19	19	182
Lanterns and illuminating apparatus.....	5	88	113
Buoys and apparatus.....	2	41	128
Day beacons.....	1	1	15
Steamers.....	3	1	3
Land surveys.....	47	188	311
Plans relating to water lot applications.....	8	124	79
Miscellaneous.....	36	171	342
	187	676	2,949

Total plans for twelve months from April 1, 1910, to March 31, 1911.....	3,812
Charts received and recorded.....	300
Charts received and entered in chart books.....	45
Photographs received and recorded.....	260
Specifications written.....	117
Notices to mariners issued (comprising 340 subjects).....	115

PUBLICATIONS.

The work of preparing and issuing notices to mariners continues to be heavy and urgent; during the past twelve months 115 notices, covering 340 subjects, have been published. Amongst important notices, involving considerable labour in compilation, and representing useful work done in the department, are:—

Hydrographic information as to anchorages in the vicinity of Bic.

Lists of buoys and descriptions of buoyage in Goderich harbour; in the Bay of Quinte; in Presqu'île bay, involving a revision of system; in Portland canal, B.C.; in Byng inlet; in the Magdalen islands; in Victoria harbour and Port McNicoll; in the St. Lawrence ship channel between Cap Charles and Cap à la Roche, and in Repentigny channel, including re-numbering, with a description of this new alternative channel.

Tidal information respecting the north shore of the Gulf of St. Lawrence; and water the result of tidal observations and advice as to the best routes in making the entrance to the St. Lawrence river.

A description of the North Atlantic trade routes adopted by the leading transatlantic lines.

A complete list of wireless telegraph, telephone, and telegraph signal stations operated by the Government of Canada on the eastern coasts, as far west as Montreal, with particulars respecting the mode of operation.

The adoption of true azimuth bearings instead of magnetic bearings in future publications of the department, including notice to mariners and lists of lights and fog signals.

During the past twelve months notices relating to waters outside of Canada were issued, covering twenty items relating to Newfoundland and Labrador, six items relating to the inland, and three to the Pacific waters of the United States, as well as eight notices referring to transatlantic subjects. No attempt is made to issue a complete synopsis of British or foreign notices, but merely to publish items likely to be of immediate interest to Canadian vessels, or to vessels leaving Canadian ports for the more important or frequented foreign ports.

PERSONAL INSPECTIONS.

During the past year a large number of personal inspections were made by myself and by my principal assistant, Mr. B. H. Fraser. I consider that the more closely construction work is watched and the more personal supervision is given to the general investigation into requirements on the ground by principal officials of the department, the more efficiently can the work of the department be carried out.

The following are the more important of the inspections made by me during the past year:—

In May, 1911, an inspection of aids to navigation at the foot of Lake Ontario.

In June, an inspection of the River St. Lawrence from Montreal to Bergeronnes.

In June and July, an inspection of the upper lake lights, finishing with an inspection of the completed portion of the Trent canal.

In August and September, a very thorough inspection of Nova Scotia stations east of Halifax.

In January, 1912, an inspection in the Maritime Provinces, including investigation of the site of a Departmental depot in St. John.

In February, an inspection of aids to navigation on the Red river and Lake Winnipeg.

In March, an inspection of conditions at the mouth of Muskoka river, resulting in the establishment of a system of lighting.

I am instructed to include in this report copies of my general reports on the inspection of the Trent canal system, and on the inspection of Nova Scotia lights, resulting from two of the above mentioned trips:—

REPORT OF INSPECTION OF TRENT CANAL SYSTEM.

July 28, 1911.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to report that, in accordance with instructions, I joined Mr. J. H. McClellan, superintendent of the Trent canal, at Orillia on the morning of the 3rd instant, and in his company, on the canal steamer *Bessie Butler*, inspected the Trent canal system from Orillia to Peterborough on the 3rd, 4th and 5th, and I must confess to a feeling of surprise at the large extent of the system as already developed, and at the great amount of work that has been done in providing aids to navigation.

Length of System.

From the head of Lake Couchiching to Healey Fall there is uninterrupted navigation for 160 miles, for vessels of 6 feet draught, and if the lake navigation not included in the direct line is reckoned its extent would probably exceed 100 miles more. Lakes Simcoe and Couchiching have, of course, always been navigable, the direct route through them from Washago to Cambridge being 25 miles long. Between Lake Simcoe and Balsam lake a canal has been excavated for a distance of 19 miles, following in a general way the course of the Talbot river. On this stretch occurs the Kirkfield pneumatic lock, with a direct lift of 50 feet. From Balsam lake there is a succession of lakes linked by short stretches of river, covering a distance of 62 miles to Lakefield. Thence to Rice lake the course of the Otonabee river is followed for 31 miles passing Peterborough, with its fine lock with a lift of 65 feet. Rice lake is followed for 18 miles and the Trent river for 14 miles to Healey Fall.

Limiting Sizes.

The canal was originally designed for 5-foot navigation, and from Lindsay to Port Perry on the Seugog river, a branch merely of the direct route, only 5 feet are yet available. The 5-foot scheme was at an early date relinquished in favour of 6-foot navigation, and a large portion of the canal is built with locks having a mini-

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num length of 134 feet, a width of 33 feet, and a depth on the sill of 6 feet. Work lately undertaken is designed for 8-foot-4-inch navigation, and the lock at Rosedale has been built 175 feet long, 33 feet wide, with that depth on the sill. The contracts now under way between Healey Fall and Trenton contemplate locks of the same dimensions with a 9-foot channel between the locks.

Character of Work.

All the work upon the canal has been done in a very substantial way. Locks are of concrete (the earlier ones of cut stone); the Kirkfield and Peterborough lift locks are so well known as to require no description; a fine bascule bridge at Lindsay and a concrete arch bridge in the township of Eldon are worth noting; most, if not all, of the other bridges are of steel.

Traffic.

The route has heretofore been handicapped by the fact that it has no outlet at either end so that steamers on the system cannot enter the St. Lawrence or the Great Lakes and *vice versa*. Within about three years from this date the Trenton end of the canal will be opened into the Bay of Quinte, and I have not the slightest doubt that the opening will admit a swarm of small steamers into the interior waters of the system, principally pleasure yachts during the summer season. Rice lake, Stoney lake, Sturgeon lake and other parts of the system are already thickly sprinkled with summer cottages, and a large number of ferry steamers and gasoline launches ply on the waters. The quantity of freight traffic at the present time is infinitesimal and I doubt if the canal will ever compete largely with the railways that now tap the district. However, the passenger traffic is large and will undoubtedly be larger in the future, at least for the summer months.

Power Development.

Besides the work done on the canal proper a great deal of work has been done in developing water power, which of course does not come within the scope of this report.

Reservoir System.

A large area of northern lakes has been put under control by damming, to form reservoirs for the regulation of the levels in the canal reaches and of the supply of water for power.

Wharfs.

There is a large number of wharfs on the route, some of which were built by the Department of Public Works, the others by the canal. Many of the wharfs were built by the canal authorities and paid for by the Public Works Department, and all are maintained by the canal in very neat condition.

Some of the more recently built are very fine concrete structures, notably the wharf at Lakefield. I understand that there is some system of lease or toll whereby a limited income is derived from them.

Aids to Navigation.

Mr. McClellan has met the needs of navigation by establishing no less than 317 buoys and 26 lighthouses. The buoys are spars, nicely dressed and painted, moored with concrete sinkers; the port hand buoys are all painted white instead of black, and I think this is a great improvement, as they can be seen in the dark when dark objects are absolutely invisible; they can also be picked up very much more readily with search-lights than dark coloured objects. Their superiority in visibility over the red buoys was so marked that I think the desirability of changing all our black

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buoys to white worthy of consideration. The lighthouses are small buildings with clapboarded sides painted white; they taper to a very small square at the top surmounted by a lantern one to two feet square; 14 of them on the Scugog river are built on cedar floats at the bends in the channel. A few of them are lit with acetylene; the others have very inferior oil lights, but are probably good enough for the purpose required.

Recommendations.

Mr. McClellan is very anxious that the system of buoys and lights should be extended, and drew my attention to the necessity for having an extended system in operation by the time the canal is opened to Lake Ontario. It appears to me desirable that reasonable facilities for navigation should be provided, and I presume that it should be a function of this department to maintain existing buoys and lights. An objection to be urged is the fact that the canal authorities have the only facilities for establishing and maintaining these aids. Possibly some arrangement might be devised similar to the understanding reached with the Public Works Department about wharfs whereby the control would remain as it is in the canal authorities, this department contributing the cost or a portion of the cost of maintenance. In any event it appears to me that the 26 lighthouses should be included in our List of Lights. I recommend:—

(1) That a sum be paid to the Department of Railways and Canals out of the vote for construction, to recoup that department for the expenditure already incurred in providing lighthouses and buoys, the amount to be settled by the Minister.

(2) That a small allowance be made to the Department of Railways and Canals out of the construction vote, annually, for the next five years, for increasing in number the aids to navigation, especially on the Trenton division, so that they will be ready for the opening of navigation to Lake Ontario.

(3) That a small allowance out of the maintenance vote be paid over, annually, to the Department of Railways and Canals, for maintenance of lights and buoys, with the understanding that they will maintain these as heretofore, utilizing their own steamers and their own staff for doing the work, as in this way the work can be more easily and economically done.

Enclosures.

I append a memorandum of buoys and lighthouses together with estimated cost thereof submitted by Mr. McClellan. With regard to the cost I consider Mr. McClellan's estimate too high, and think it might be divided by two.

I took full notes regarding details of the route, which would be out of place in a general report but which I have filed so as to be available for reference if required, and I can give at any time called upon information as to details from my very close examination of the canal as far as Peterborough.

I append hereto for examination:—

(1) A reference guide book to the canal, just published, which contains very good plans of the lakes on the system, to which I have added notes;

(2) A set of photographs, supplied by one of the canal officials, of a cement gun which might be profitably adapted for our own concrete repairs;

(3) Some photographs taken by myself along the route, annotated.

Respectfully submitted,

WM. P. ANDERSON,

Chief Engineer.

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GENERAL REPORT OF INSPECTION OF NOVA SCOTIA LIGHTS EAST OF HALIFAX.

October 27, 1911.

To The Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit the following general report on the result of my late inspection of lights on the Nova Scotia coast east of Halifax, with deductions which I drew therefrom:

Condition of Stations.

On the whole the stations in this district are not kept as tidy as they are in other parts of the Dominion. The outside premises are usually littered with firewood, fishing equipment and miscellaneous odds and ends, and there is little effort made to have things trim and shipshape as they should be around a government establishment. I found the buildings in good order, and very few repairs required. The painting in most cases is very bad; this I shall refer to lower down when discussing supplies.

Keepers.

The untidiness referred to is due to the fact that the keepers are generally chosen from amongst the fishermen, and all fishing establishments along the coast are notoriously dirty and untidy. It would be a very great advantage if men destined to be keepers of our more important light-stations received some preliminary training at a depot or at a few selected lighthouses under competent supervision, where the necessity for cleanliness and for perfect adjustment of the illuminating apparatus could be impressed upon them as part of their duties. In this connection, I would remark that we always find the best kept lighthouses where the keepers are married men with their wives and families living at the stations. At some stations I found dwelling houses provided but not occupied. Occasionally keepers did their work by substitute, a practice that is absolutely contrary to the rules of the department and that should be strictly forbidden, not only because old cheap men are hired for the work but also because it is a scandal that a lightkeeper should draw a good salary, pocket the greater part of it and furnish no service for the money thus secured.

Illuminating Apparatus.

I think I am within bounds in saying that the illuminating apparatus in this district is in worse condition and includes more out-of-date equipments than any other district in the Dominion. I have made separate reports on many stations which require immediate change of apparatus, and these will be dealt with separately. We very often found lamps out of focus, reflectors out of plumb, or lenses out of level. The lanterns as a rule were good, much better than the illuminating apparatus, and in most cases quite good enough to be used with new apparatus.

Inspection.

I must pay a tribute to the very great energy and intelligence displayed by Captain Johnson in connection with his duties as inspector. On the trip he was a very hard worked man, and had his files, books and supplies in first rate order. It is, however, impossible for any inspector, no matter how good a man he may be, to keep stations in order by one hurried visit in a year. His time during this visit is so occupied in delivering supplies, checking the keeper's books, and attending to the multifarious questions arising out of supply, that he cannot give the time necessary to instruct the keeper in his duties or in putting the illuminating apparatus in proper order. Very often such overhauling of apparatus would mean delay for a day

or more, and there are more economical ways of doing this work than holding a large supply steamer while it is being undertaken. I think that our apparatus erectors should spend their whole time in patrolling the coast and making sure that the keepers understand the importance of *clean apparatus in proper adjustment*, and of obtaining the best possible flames out of the lamps with which they are provided. This would mean a stay at each station over at least one night.

Supplies.

The distributing of supplies is a matter of some difficulty in consequence of the illiteracy of many of the keepers. They are provided with forms on which they should show what supplies they have on hand and what supplies they will require for the next year. Sometimes these are not filled out at all; often they are improperly filled out, so that frequently the storekeeper in Halifax has to guess at what is required at a station. The consequence is that, as no risk can be taken of omitting supplies that would be required, many articles are unnecessarily duplicated. Captain Johnson is endeavouring to overcome this by filling forms of his own, but it is slow work, and at some stations we found that certain classes of supplies had accumulated so that quantities sufficient for two or three years were on hand. This is especially the case at small stations where the lightkeeper is not in residence. At two or three places we found that the keeper lived at a long distance from the light, and he could not be got to the station during our visit. At such places, of course, it was impossible to check the supplies, and the nearer lightkeepers are forced to reside to their lights the better service we naturally obtain.

The paint supplied in past seasons, as evidenced by the results on the buildings, has been just as bad as I have previously reported in other districts. The red paint especially is very bad. Within a few weeks after being put on it turns to any colour but red, and specimens of building might be selected, originally red, of any colour through white and purple to black, but not red. These buildings were painted with Sherwin-Williams' red paint, and I cannot account for the fact of it turning different colours, but certainly no more of that quality of paint should be purchased. A great deal of the painting is very badly done by the lightkeepers; they do not appear to have any judgment as to the thickness with which it should be put on, or of the proper way to lay a flat coat. At some stations, especially in interior work, I found thick streaks of paint laid on over accumulations of dirt; the old paint had neither been scraped nor had the keeper taken the trouble to sweep the room before painting. I think it would be well to prepare special printed instructions convenient for reference by the lightkeepers, and punish them in some way for bad work in painting.

Oil.

The oil in this district is all supplied in cases and these cases were so badly nailed and the cans in them were of such thin tin that I venture to say there was a loss of ten per cent of the oil. The cases were thick enough but were made of soft wood. The bottoms were nailed on with too small nails; the consequence was that with the rough handling of the cases, many of the bottoms were forced off, the cans would then fall on to the point of a nail and holes resulted, which would speedily empty the cans. The remedy for this would appear to be better wood or better nailing. The tops are screwed on, but I think this is a useless expense for two reasons. In the first place the contractors hammer the screws in instead of screwing them in; in the second place the keepers never take the trouble to unscrew the tops but break them off and frequently punch holes in the tops of the cans for vents. Some inspection of both cans and cases seems desirable by the purchasing branch.

The question of the return of empties is a serious one. I doubt very much if it pays to take these cases away from the stations. We landed at Sydney six hundred

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cases. For these, if in good order, I believe the department received 10 cents apiece. Probably 20 per cent of them were not in good order. The tins when empty, rust very quickly and if we get any of these rusted tins back again another element of leakage is introduced. The \$60 which we got for the cases meant certainly over a day's delay for the ship and involved a good deal of handling by the crew which they did not relish. I think the whole question of the handling of oil should be taken up by the purchasing branch. In the United States Lighthouse Service I believe the oil is delivered in very heavy cans surrounded singly by cylindrical wooden cases. These cans are emptied at the station and brought back immediately and are refilled from bulk at the depot. At our important stations it would be well to build in large plate iron tanks strong enough to guarantee freedom from leakage through corrosion and have these tanks filled immediately upon the receipt of the supply, and if possible, have the oil conducted to the lantern by an air pressure system. This would eliminate many sources of dirt and waste.

One word in conclusion respecting the handling of the steamer *Lady Laurier*. I was pleased with the efficiency and promptness with which the supplies were handled. Before we reached a station the supplies for that station were collected on deck and the boats were ready for lowering before the anchor was dropped. The officers and men worked willingly, sometimes under very disagreeable conditions, and I consider it a remarkable achievement to have supplied over one hundred lighthouses in three weeks, especially as the long runs to Sable island and Cape Race were included, that some time was lost through bad weather, and that work could generally only be done by daylight. The landings on the Atlantic are more or less exposed and rough. The surf boats when loaded draw a good deal of water. It was usually necessary for the crew to jump out into the water and the two boat crews were practically wet through every day from daylight to dark or later. I think this should not be expected of the sailors, and I suggest that ten suits of waders be supplied to this crew and similar suits to all other crews engaged in similar work for their protection. These waders cost about \$5 a pair and are put on under ordinary boots. Especially during the fall trips of the steamers it is no more than humane to protect the men by such equipment.

Respectfully submitted.

WEST COAST TRAILS.

The work on the West Coast Trail was continued during the season of 1911, and the trail completed as far as Nitinat river. During the fiscal year the amount spent on this work was \$20,988.88.

It is proposed to continue the work during the coming season, but as a footpath only, as far as Carmanah lighthouse, which ought to furnish all the communication required at present on the west coast.

PRINCE RUPERT DEPOT.

The most considerable and important work undertaken by my branch during the past year has been the construction of a departmental depot on Digby island, near Prince Rupert. This included the erection of a buoy shed, machine shop and engine house, with the installation of the necessary power plant and machinery, the provision of dwellings for the agent, the several foremen, and the labourers, these being required in consequence of the absence of any living accommodation on the island, and finally the construction of a fine wharf, built of reinforced concrete piles, with a wooden deck.

The work was done under contract by the Pacific Coast Construction Company, their contract price being \$159,445. During the past fiscal year the sum of \$156,813.31 has been spent on the work. The station is now practically completed, and it will be necessary to instal a sub-agent and staff during the next fiscal year.

From this depot it is hoped that all aids to navigation in northern waters can be maintained with much less expense and with greater efficiency than when it was necessary to send all steamers and supplies from our Victoria agency.

ST. JOHN (N.B.) DEPOT.

For some years past the department has been endeavouring to secure a site for a departmental wharf and depot at St. John for the service of the Bay of Fundy aids to navigation. Several sites have been examined with that end in view. In February last a desirable site was found on the Carleton shore, just above Navy island, in an eddy where the spring freshets should not interfere with the use of the wharves.

A large extent of property was purchased with valuable water frontage on which wharves will be constructed during the coming year.

REMOVAL OF OBSTRUCTIONS.

During the past twelve months the following work has been done, under the annual appropriation for the removal of wrecks and obstructions:—

(1) The steam barge *Tecumseh* which sank in Goderich harbour, Lake Huron, was removed by W. L. Horton, the contract price being \$2,350.

(2) The steamer *Lycoming* which sank in Rondeau Harbour, Lake Erie, was removed by the Hacket Towing and Wrecking Company of Amherstburg. The contract price was \$4,900.

(3) The schooner *Palestine* which sank in St. Croix river, N.B., was removed by day labour under the direction of the department's agency at Halifax, at a cost of \$500.

(4) Removal of logs from Letch harbour, N.B., at a cost of \$4.

(5) Removal of a snag from the river at St. John, N.B.

HYDROGRAPHIC WORK.

The hydrographic surveys previously under the control of this department, are now administered by the Naval Department. As, however, most of the information contained in the Canadian notices to mariners relates to work done in this department it has not been thought desirable to transfer their preparation. Therefore any hydrographic notes reaching the department are prepared for publication in this office, and embodied in notices to mariners.

In preparing these, special attention has been paid to publishing all information obtainable respecting the hydrography of Canada, and the fullest possible sailing directions have been appended to all descriptions of aids to navigation so as to increase the value of the notices. On January 1, 1912, they were changed in form, to make them more easily available in correcting charts and other documents, as well as to conform to British Board of Trade usage. At the same time astronomic bearings, stated as azimuths, were substituted for the magnetic bearings previously given, which will ensure greater accuracy.

The usual annual edition of the list of lights and fog-alarms in the Dominion, corrected up to April 1, 1910, was issued during the summer, the reprints of the portions relating to the Great Lakes and British Columbia bound separately for the use of mariners in those waters.

ICE-BREAKING.

Two contracts were entered into, during the present season, for ice-breaking in Thunder bay and vicinity:—

(1) The Canadian Towing and Wrecking Company, Limited, of Port Arthur, contracted with the department to keep the harbours of Port Arthur, Fort William and West Fort William open for navigation until December 17, 1911, and to open those harbours in the spring of 1912 in time to admit upward bound vessels to enter the harbours as soon as the Sault Ste. Marie canal should be open for navigation. The contract price was \$19,250, which included an agreement to remove all light-keepers in the vicinity from their stations at the close of navigation in 1911.

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(2) A contract was entered into with S. Shipman, of Sault Ste. Marie, Ont., to keep free from ice the channel between Kensington Point, on the north shore of St. Joseph channel, and a convenient landing on St. Joseph island, or Campement d'Ours island, the work beginning in the autumn of 1911, and continuing until the ice had formed to sufficient thickness to permit teams of horses to cross in safety. The work also included the breaking of a channel in the spring before the ice becomes dangerous, and keeping the channel free until general navigation was resumed. The contract price was \$500.

In both of the above cases the work was satisfactorily done, under the supervision of the harbour masters of the respective ports.

Respectfully submitted,

WM. P. ANDERSON, M. INST. C. E.,

Chief Engineer.

CHIEF ENGINEER'S OFFICE,

Department of Marine and Fisheries,

Ottawa, Canada, April 1, 1911.

(INCLOSURE A.)

DETAILED REPORT OF THE CHIEF ENGINEER OF THE DEPARTMENT
OF MARINE AND FISHERIES ON CONSTRUCTION, ESTABLISH-
MENT AND IMPROVEMENT OF LIGHTHOUSES AND OTHER AIDS
TO NAVIGATION, UP TO MARCH 31, 1912.

To the Deputy Minister,
Department of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit in tabular form a detailed report on work done in the construction and establishment of aids to navigation, for the twelve months ending March 31, 1912, being a summary of the total expenditure from the vote for the construction of aids to navigation.

NOVA SCOTIA.

NEW AIDS TO NAVIGATION.

Light station.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Caribou channel	Establishment of two pairs of day beacons on Gull and Doctor islands.....	Day's labour....	G. J. Murray.....	313 36
Eastern points...	Erection of pole light with shed at base.....	Contract.....	J. W. Smith, Lunenburg.	190 00
Friar Head Boat harbour...	Inspection expenses.....			9 40
	Erection of a 15-foot pole light with shed at base.....	Contract.....	Amédée Aucoin.....	150 00
	Purchase of site, supply of lantern, &c.....			48 12
Hall harbour...	Erection of a 29-foot high square wooden tower supported on four steel columns, surmounted by a square wooden lantern.....	Contract.....	A. H. Dyas, Parrsboro.	325 00
	Provision of the steel substructure.....	Furnished under general contract.....	Goold, Shapley & Muir, Brantford.....	341 45
Hampton.....	Erection of a 33-foot high square wooden tower with sloping sides, surmounted by a square wooden lantern.....	Contract.....	J. F. Titus, Hampton...	585 00
	Inspection fees, purchase of site, &c.....			88 97
Joggins.....	Erection of a 32-foot high square wooden tower on four steel columns, surmounted by a square wooden lantern.....	Contract.....	A. L. Mury, West Arichat.....	678 00
	Provision of the steel skeleton substructure.....	Furnished under general contract.....	Goold, Shapley & Muir, Brantford.....	337 15
	Inspection fees, &c.....			50 55
Man-of-War pt..	Erection of a 32-foot high square wooden tower with sloping sides, surmounted by a square lantern.....	Contract.....	P. L. MacFarlane, Baddeck.....	974 00
	Inspection fees, surveying site, &c.....			63 86

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NOVA SCOTIA—Continued.

NEW AIDS TO NAVIGATION—Continued.

Light station.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Owl head.....	Erection of a 36-foot high square wooden tower with octagonal lantern.....	Contract.....	F. H. Stoddard, Jeddore	2,650 00
	Provision of an iron lantern.....	Furnished under general contract	Victoria Foundry Co., Ottawa.....	626 50
	Inspection fees, purchase of site, &c.....			230 83
West Arichat....	Erection of a mast light on Government wharf.....	Day's labour....	A. Mury.....	65 34
Buoys and beacons.....	This item includes the purchase of one submarine bell buoy, two automatic gas buoys, 18 can buoys, and the staking of Goose bay channel with spar buoys.			7,297 70

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Amet island....	Repairs to crib work and to roof of building.....	Day's labour....	Alex. Cameron.....	692 24
Beaver island...	Erection of an oil shed.....	"	Henry Backhouse.....	196 70
Caribou island...	Building of protection work.....	"	Hector McKinnon.....	780 23
Coffin island....	Cribwork protection work.....	"	H. B. Wolfe.....	701 68
Country harbour	Erection of a storehouse.....	"	S. C. McMillan.....	393 54
Flint island.....	Erection of a double dwelling.....	Contract.....	A. McAskill, Glace Bay	4,300 00
	Inspection fees, &c.....			218 67
	Alterations and changes in light-house tower and boathouse....	Day's labour....	J. L. Colter.....	937 98
Fort Churchill.. (Hudson bay)	Provision of a steel frame for a day beacon to be erected by the R.N.W.M.P.....	Furnished under general contract	Goold, Shapley & Muir, Brantford.....	447 00
	Supplies shipped in connection with above construction.....			25 94
Jerseyman island	Construction of a new boathouse, and small repairs to lantern deck railing.....	Day's labour....	H. Sampson.....	158 35
Kidston island..	Erection of a new 50-foot high square wooden tower with sloping sides, surmounted by an octagonal lantern (replacing the old tower, which will be demolished).....	Contract.....	L. Mury, West Arichat.	1,006 50
	Provision of a lantern.....	"	Victoria Foundry Co., Ottawa.....	626 50
Mauger beach...	Preliminary expenses in connection with a new dwelling to be erected next season.....			72 90
McNab island...	Construction of a wooden boathouse. (Will be completed during the season 1912-1913)...	Day's labour....	E. G. Geizer.....	213 21
Medway head...	Construction of a new lantern and other small repairs. (Will be completed during the season 1912-1913.).....	"	LeB. J. Atkins.....	143 74

NOVA SCOTIA—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Light station.	Nature of the work.	How performed.	Contractor. or foreman.	Expenditure during fiscal year.
				\$ cts.
North cape	Erection of an oil store. (Will be completed during the season 1912-1913).....	Day's labour...	J. McNeil.....	535 41
Page island.....	Erection of a new oil store. (Will be completed during the season 1912-1913).....	" ..	J. A. Huskins.....	110 80
Petitdegrat.....	Extension made to dwelling....	" ..	S. Sampson.....	572 84
Pomquet island..	Alterations to light, re-shingling roof of building, and other small repairs.....	" ..	P. Durrant.....	470 76
Prim point.....	Replacing old fog alarm building by a new one, and installation of new plant.....	" ..	D. F. Young.....	4,364 94
	Provision of a 3-inch diaphone and class "D" duplicate plant.	Furnished under general contract	Canadian Fog Signal Co. Toronto, Ont.....	6,162 67
Pugwash.....	Preliminary work on the construction of 100 feet of protection work around the light-house. (Will be completed in the season 1912-1913).....	Day's labour...	W. H. Brown.....	31 26
Quaker island...	Construction of an oil store. (Will be completed during the season 1912-1913).....	" ..	G. C. Webber.....	149 94
Race, Cape.....	Fog alarm improved by the installation of two powerful 7" diaphones.....	Furnished under general contract	Canadian Fog Signal Co. Toronto, Ont.....	6,213 17
Ronde, Cape la.	Repairs to dwelling and protection work. (Will be completed during season 1912-1913).....	Day's labour...	Philip Mauger.....	2,351 64
St. Mary, Budget.....	Building of protection work. (Will be completed during the season 1912-1913).....	" ..	D. Dickson.....	391 13
St. Paul island..	Erection of a new dwelling for the fog alarm engineer.....	" ..	J. L. Colter.....	3,462 63
Sable, cape.....	Repairs to coal shed.....	" ..	A. H. Cunningham.....	39 00
Sambro island..	Erection of a new wooden dwelling for the lightkeeper.....	Contract.....	Geo. H. Lantz, Sambro.	1,985 00
Scatari.....	Erection of a new boathouse and slip. (Will be completed during season 1912-1913).....	Day's labour...	James Fearing.....	359 49
Sydney, S.E. bar	Erection of a 35-foot high square wooden dwelling with hip roof, surmounted by an octagonal lantern and built on a 15-foot crib-work pier with concrete exterior. (In the water off the bar, replacing the old light-house on the south-east bar).....	Contract.....	Chappell Bros., Ltd., Sydney.....	7,350 00 1,000 0
	Building protection work for pier	" ..	" ..	708 05
	Inspection fees and installation of a 10,000-blow machine.....			1,132 87
Thrumcap isld. (Marie-Joseph)	Building a breakwater.....	Day's labour...	C. H. Baker.....	
Wolf point, Ship harbour.....	Erection of a new storehouse and crib protection work.....	" ..	G. W. Siteman.....	292 04

SESSIONAL PAPER No. 21

NOVA SCOTIA—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Light station.	Nature of the work.	How performed.	Contractor. or foreman.	Expenditure during fiscal year.
				\$ cts.
Miscellaneous expenses.....	Such as salaries of erectors, travelling expenses of local officers and inspectors, telegrams, &c.			5,298 79
Lanterns.....	Purchased from the American Gas Accumulator Co., to be charged out against the several stations where those lanterns will be used.....			7,400 00
				61,297 61

NEW BRUNSWICK.

NEW AIDS TO NAVIGATION.

Barnes point....	Erection of a 27-foot high square wooden tower, with sloping sides, surmounted by a square wooden lantern.....	Contract.....	John A. Lea, Sackville..	982 80
	Inspection fees.....			39 31
Lords cove.....	Provision and erection of an iron spindle.....	Day's labour....	E. A. Lambert.....	77 70
St. John.....	Purchase of site for the erection of a new departmental depot..			69,000 00
Tiner point....	Balance on work done last fiscal year on reservoir repairs.....	"	A. Splane.....	19 71
Tinker ledge....	Provision and erection of an iron spindle.....	"	E. A. Lambert.....	77 70
Buoys and beacons.....				116 00

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Buctouche bar...	Protection work repairs (this work was started during last fiscal year).....	Day's labour....	H. Gallant.....	84 32
Dalhousie.....	Completion of work of raising tower.....	"	P. B. Troy.....	34 87
Douglas island..	Purchase of lighthouse site.....		Dalhousie Lumber Co..	300 00
Enrage, cape....	Repairs to fog alarm and building of a concrete reservoir.....	"	John Ganong.....	733 94
Escuminac.....	Completion of improvements to buildings started last year....	Contract.....	Edw. Rourke, St. John West.....	237 39
Fort Monckton..	Building a breakwater around the old militia burying ground (the cost of this work was borne equally by the Marine and Militia Departments.....	Day's labour....	R. P. Lowther.....	281 97
Gannet rock....	Provision of a 5-inch diaphone to replace old machinery.....	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	2,797 20
Grindstone isl'd.	Erection of a reinforced concrete tower and extension to coal shed.....	Day's labour....	W. F. Fitzgerald.....	4,418 01
Gull cove.....	Expenditure in connection with purchase of site of lighthouse..			19 55

NEW BRUNSWICK—*Continued.*CHANGES AND IMPROVEMENTS IN EXISTING AIDS—*Continued.*

Light station.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Hampstead....	Erection of a 21-ft. high square wooden tower and lantern to replace mast light on wharf. (Will be completed during the season 1912-1913).....	Contract.....	G. W. Palmer, Tennant's cove.....	650 00
Harper point....	Completion of erection of a tower on pier started last year.....	Day's labour....	J. Kelly.....	89 66
Heron island....	Purchase of site for a boathouse to be erected during the season 1912-1913.....		Wm. Maxwell.....	15 00
Machias Seal island.....	Repairs to fog alarm reservoir...	"	J. Ganong.....	397 29
Partridge island.	(1) Building 9-foot concrete foundation under lighthouse tower (2) Installing boiler and extending fog alarm building..... (The last item will be completed during the season 1912-1913).	"	J. E. Kane.....	2,451 00
		"	James Carleton.....	
Quaco.....	Building new concrete floor over reservoir.....	"	F. J. Lewis.....	79 83
Sheldrake island range lights ...	(1) Erection of a 34-foot square wooden tower, surmounted by a square wooden lantern, for the front range light..... (2) Erection of a 50-foot steel skeleton tower surmounted by a wooden lantern for the back light.....	Contract.....	John J. Fitzgerald, Newcastle.....	1,450 00
	Inspection fees, &c.....			83 50
Miscellaneous expenses	Including salaries of erectors, travelling expenses of local officers, &c.....			1,029 72
				15,153 27

PRINCE EDWARD ISLAND.

NEW AIDS TO NAVIGATION.

Brighton beach.	Provision of additional land at the back range light.....		Jas. Lewis, Brighton....	60 00
Fish island.....	Erection of a 22-foot pole, to carry a lens lantern, as a back range light.....	Day's labour....	G. L. Gaudin.....	63 65
West point.....	Expenses in connection with the erection of two pole lights. (Will be completed during the season 1912-1913).....			34 32
				157 97

SESSIONAL PAPER No. 21

PRINCE EDWARD ISLAND—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Light station.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Charlottetown Departmental stores.....	(1) Providing tools for workshop (2) Fitting up office on marine wharf..... (3) Fitting up carpenters shop.... (4) Planking Government wharf (5) Building a gas buoy test shed (6) Carrying pipe line from marine wharf to office..... (7) Removing wires on poles on west side of marine wharf..... (8) Cutting down eastern slip of marine wharf..... (Some of the works enumerated above are unfinished but will be completed during the season 1912-1913.	Day's labour..	G. L. Gaudin, J. R. Davies.....	1,101 00
Grand Tracadie.	Moving towers to new sites.....	"	J. Macdonald.....	25 00
Miscellaneous expenses.....	At Souris and Wood island.....			10 52
				1,136

QUEBEC.

NEW AIDS TO NAVIGATION.

Anse à Beaufils..	Erection of a 25-foot pole carrying an anchor lens lantern; also a small oil shed on the beach....	Contract.....	N. Lagacé, Anse à Beaufils.....	150 00
Basse pointe....	Erection of a 30-foot high square wooden tower, on four steel columns, surmounted by a square wooden lantern.....	Day's labour....	J. U. Dubé.....	278 55
Bélier, île au....	Erection of a 26-foot pole carrying an anchor lens lantern (to serve as a back light to form a range with an existing light).....	Contract.....	Eph. Potvin.....	300 00
Caribou.....	Purchase of sites for range lights to be erected during season 1912-1913.....		J. & H. Savard.....	100 00
Clarke City....	Erection of a 20-foot pole carrying an anchor lens lantern, with wooden shed at base.....	Day's labour....	J. A. Smith.....	95 70
Escoumains.....	Erection of a 20-foot pole carrying an anchor lens lantern.....	"	C. Bélanger.....	35 38
Ferrolle point....	(1) Erection of a lighthouse tower, fog alarm building, double dwelling, boat and storehouses..... (2) Provision of Class "D" duplicate diaphone plant. (Will be completed during season 1912-1913.)	"	T. Thibodeau.....	13,551 50
		Furnished under general contract	Canadian Fog Signal Co. Toronto.....	6,115 89

QUEBEC—Continued.

NEW AIDS TO NAVIGATION—Continued.

Light station.	Nature of the work.	How performed.	Contractor. or foreman.	Expenditure during fiscal year.
				\$ cts.
Flat island.....	Erection of a lighthouse tower, dwelling, shed, boathouse, and construction of a roadway (Will be completed during season 1912-1913).....	Day's labour...	D. Bilodeau.....	4,802 12
Flower ledge....	Establishment of an experimental fog signal station, using cotton powder bombs.....	"	Quebec workshops.....	233 51
Gaspé basin.....	Erection of two wooden towers on cribwork piers (started in 1910-1911).....	Contract.....	Arthur Morin, Gaspé....	3,255 00
	Inspection fees, &c.....			214 80
Mistook (Lake St. John).....	(1) Erection of range light masts carrying anchor lens lanterns..	"	Jas. Fleury, S. C. de Marie.....	125 00
	(2) Construction of an oil store..	"	Ed. Fleury, S. C. de Marie.....	90 00
	(3) Purchase of sites.....			109 45
Natashkwan....	Preliminary expenses in connection with site for the erection of a new lighthouse during 1912-1913.....			143 35
Peribonka river Lake St. John.	Establishment of three sets of movable range lights.....	Contract.....	N. Laberge.....	682 00
Ste. Adélaïde de Pabos.....	Erection of a 25-foot pole hoisting lens lantern, with wooden shed at base.....	"	F. Molloy.....	85 00
	Purchase of site and deed of sale.....			148 20
St. Mary island.	Erection of a lighthouse tower and dwelling. (Will be completed during season 1912-1913)	Day's labour..	F. E. Coté.....	5,088 04
Simard.....	Survey and purchase of sites for erection of range lights during season 1912-1913.....		E. & H. Simard.....	130 75
Rivière à la Pipe	Erection of a pole light to form a back light to range.....	Contract.....	A. Morin.....	15 00
Buoys and beacons	This item covers the cost of the labour on the manufacturing of buoys for the Gulf St. Lawrence, the Saguenay River and Lake St. John. The work was done in the Quebec departmental workshops.			1,858 30

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Amherst island wharf.....	Erection of a 30-foot high wooden tower square in plan, supported on a steel skeleton framework, and surmounted by a square, wooden lantern (Ironwork provided last year).....	Day's labour...	J. H. Dubé.....	199 94
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SESSIONAL PAPER No. 21

QUEBEC—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Light station.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Amour, point...	(1) Improvements to fog alarm station.....	Day's labour...	A. Perron.....	3,897 35
	(2) Repairs to tower and dwelling, including the re-sheathing of tower, renewing double windows and building a porch....	"	A. Tremblay	
Anguille, cape...	Provision of a 5-inch diaphone..	Furnished under general contract.....	Canadian Fog Signal Co., Toronto.....	2,797 11
	Completion of an addition to fog alarm building, minor repairs and installation of diaphone plant.....	Day's labour...		76 35
Bagot Bluff (Anticosti).....	Completion of an 80-foot reinforced concrete tower, construction of a double dwelling, fog alarm building, new storehouse and sheds.....	"	I. Blanchette.....	10,811 32
Belle Isle (N.E. end).....	(1) Provision of two 7-inch diaphones to be installed during season 1912-1913.....	Furnished under general contract.....	Canadian Fog Signal Co., Toronto.....	6,119 08
	(2) Completion of a concrete wharf and repairs to dam, boatslip, sewer pipes and also repairs to fresh water pipes....	Day's labour...	D. Bilodeau.....	1,681 89
Belle Isle (S.W. end).....	Completion of payment for repairs carried out during season 1910-1911.....	"	Quebec workshops.....	236 07
Bicquette.....	Repairs to fog alarm machinery.	"	A. Ouimet.....	325 39
Carleton point...	Construction of a new 32-foot high square wooden tower surmounted by an octagonal lantern.....	Contract.....	C. Bernier, Carleton...	1,260 00
	Inspection fees, purchase of site, &c.....			322 78
Chat, cap.....	Expenses in connection with lighthouse site, &c.....			54 20
Entry island....	Provision and installation of seven spar buoys.....	Contract.....	Wm. McLure.....	140 00
Etang du Nord..	Provision of a new lantern, to be used on the new lighthouse to be erected during season 1912-13.....	Furnished under contract.....	Victoria Foundry Co., Ottawa.....	626 50
Fame point.....	Provision of a 5-inch diaphone...	Furnished under general contract	Canadian Fog Signal Co., Toronto.....	2,797 11
Father point....	Alterations and repairs to dwelling.....	Contract.....	P. Hudon, Rimouski...	1,531 83
Fox river.....	Purchase of site in view of proposed moving of range lights, registration of deeds, &c.....			157 30
Grand Entry....	Changes to range lights.....	Day's labour...	A. Turbide.....	64 02
Greenly island..	Repairs to fog alarm machinery.	"	Wm. Chevrier.....	1,471 92
			J. L. Richard.....	

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QUEBEC—Continued.

CHANGES AND IMPROVEMENTS IN EXISTING AIDS—Continued.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Little Metis....	Construction of a new dwelling and outbuildings, also a cistern	Day's labour...	V. Talbot.....	4,205 21
Lower Traverse lightship.....	Provision and installation of a diaphone.....	Furnished under general contract	Canadian Fog Signal Co., Toronto.....	321 53
	Provision and installation of a marine engine.....	Furnished under general contract	Canadian Fairbanks Co	298 80
Magdalen, cape..	Alterations to fog alarm machinery oil tanks and water supply	Day's labour...	A. Ouimet.....	280 01
Monts, pointe des.....	(1) Completion of a dwelling house, started during season 1911-1912.....	Contract.....	L. Bouchard, Portneuf-en-bas.....	1,000 00
	(2) Sheathing repairs to tower...	Day's labour...	A. Perron.....	3,485 64
Noire, pointe....	Erection of a wooden shelter shed	Contract.....	J. Lacroix, Tadoussac...	350 00
	Inspection fees.....			14 00
Port Daniel.....	Provision of materials for improvements to shed.....			46 77
Portneuf-en-bas..	Completion of the erection of a 3-section steel skeleton tower surmounted by a wooden watchroom.....	Day's labour...	J. U. Dubé.....	723 10
Quebec Agency..	Preparing and making buoys and beacons to be used in the Gulf.	".....	Workshops.....	1,858 30
St. Pancras.....	Purchase of lighthouse site.....		P. Q. Land Dept.....	200 00
Seven islands....	Building a porch on fog alarm building.....	Day's labour...	Quebec workshops.....	13 60
Upper Traverse..	Repairs and placing iron plates on pier.....	".....	C. Potvin.....	689 28
	Miscellaneous expenses, including salaries of erectors, wages, travelling expenses of local officers, telegrams, &c.....			7,625 50
				55,630 20

MONTREAL DISTRICT.

NEW AIDS TO NAVIGATION.

Tétreauville.....	Erection of range lights, the rear one being a 4-section steel skeleton tower purchased and paid for last fiscal year.....	Day's labour...	P. Beauchemin.....	1,176 01
	Purchase of sites.....			1,400 00
				2,576 01

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Besserer cross-ing.....	Rebuilding and bank saving mattress.....	Day's labour...	Capt. J. D. Weir.....	138 12
Bloody island...	Repairs to pier foundation.....	".....	Capt. J. D. Weir.....	79 36

SESSIONAL PAPER No. 21

MONTREAL DISTRICT—*Continued.*CHANGES AND IMPROVEMENTS IN EXISTING AIDS—*Concluded.*

Lightstation.	Nature of the work.	How performed.	Contractor or foreman	Expenditure during fiscal year.
				\$ cts.
Grondines.....	Further expenditure in connection with work reported on in last year's report.....			183 00
Louiseville.....	(1) Purchase of sites of range lights.....	Day's labour...	B. Brault, Inspector....	100 00
Perrot fle.....	(2) Moving pole lights.....	"	Capt. J. D. Weir.....	50 00
	(1) Replacing and rebuilding range.....	"		226 50
	(2) Purchase of site of front range light.....			320 00
Petite fle course.	Purchase of site.....			20 00
Ronde, fle.....	Repairs to lighthouse.....	Day's labour...	T. Auclair.....	152 78
St. Helen isld..	Moving tower from guard pier and building a concrete pier (Will be completed next season)	"	J. Ouimet.....	15,647 00
St. Peter, lake..	Repairs on curve No. 2 and 3 lights.....	"	B. Brault, Inspector....	269 35
St. Placide.....	Repairs to front tower of down stream range.....	"	Capt. J. D. Weir.....	192 30
Steamers, scows, &c., used on construction work..	Repairs, fittings to boats, pay and board of crews of the following craft: <i>Adelard, Alpha, Davis, Hosanna, Napoléon</i> and <i>Quebec</i>			12,322 26
Vaudreuil.....	Rebuilding day beacons.....	Day's labour...	Capt. J. D. Weir.....	46 20
Miscellaneous expenses.....	Including travelling expenses of officers, wages, rent of barges, salaries of temporary office help—also a refund to another branch of the service for work done in connection with construction of lights in the Montreal district.....			20,890 28
				50,637 15

ONTARIO.

NEW AIDS TO NAVIGATION.

Badgeley island.	Establishment of range lights consisting of the construction of a combined dwelling and tower, forming the front light; and the erection of a steel skeleton tower, for the back light; also an oil store, boat house and ship.....	Day's labour...	M. J. Egan.....	4,135 41
	Provision of the steelwork for back tower.....	Furnished under general contract	Goold, Shapley & Muir, Brantford.....	542 81
	Provision of an iron lantern.....	Furnished under general contract	Victoria Foundry Co., Ottawa.....	625 26
Byng inlet.....	Provision of lumber for the erection of day beacons.....			16 75

ONTARIO—*Continued.*NEW AIDS TO NAVIGATION—*Continued.*

Lightstation.	Nature of the work.	How performed.	Contractor. or foreman.	Expenditure during fiscal year.
				\$ cts.
Hog island.....	Erection of a 33-foot high square wooden tower and lantern.....	Contract.....	Jas. Harriman, Niagara Falls.....	949 50
Michipicoten is., northeast end.	Purchase of site, &c.....			52 04
	Erection of a 65-ft. high hexagonal reinforced concrete tower stiffened by six flying buttresses, surmounted by a circular metal lantern, also a dwelling, oil store and boathouse. Work at this station was started during 1910-1911.....	Day's labour...	T. H. Brewer.....	6,840 84
Mitchell bay....	Erection of two poles exhibiting fixed lights from lens lanterns.	Contract.....	Wm. Robertson, Chatham.....	190 00
Parisienne, Ile...	(1) Erection of a reinforced concrete tower, double dwelling, fog alarm building, oil store and boathouse.....	Contract.....	Wm. Fryer, Collingwood.....	6,500 00
	(2) Provision of a class "D" diaphone and duplicate plant.....	Furnished under general contract	Canadian Fog Signal Co., Toronto.....	6,079 28
	(3) Provision of an iron lantern..	Furnished under general contract	Victoria Foundry Co., Ottawa.....	1,312 60
	(4) Freight, inspections, &c.....			382 10
	(The work at this station will be completed during the season 1912-1913).			
Portsmouth range lights...	(1) Erection of a 33-ft. high square wooden tower (front) surmounted by a square lantern..	Day's labour...	M. J. Egan.....	1,632 89
	(2) Erection of a 64-ft. high skeleton steel framed (back) tower, square in plan with sloping sides, surmounted by an enclosed watchroom and a square lantern.....	"	T. H. Brewer.....	
	(3) Provision of the steelwork for back tower.....	Furnished under general contract	Goold, Shapley & Muir.	498 80
Rondeau.....	(1) Erection of a reinforced concrete beacon, square in plan, with battered sides, surmounted by a pyramidal frame supporting the lantern.....	Day's labour...	T. H. Brewer.....	2,583 77
	(2) Provision of the gas beacon..	Contract.....	International Marine Signal Co., Ottawa.....	1,539 86
Buoys and beacons.....				8,912 41
				42,794 31

SESSIONAL PAPER No. 21

ONTARIO—*Continued.*

CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Lightstation.	Nature of the work.	How performed.	Contractor. or foreman.	Expenditure during fiscal year.
				\$ cts.
Cabot head.....	Erection of an oil shed and improvements to fog alarm machinery.....	Day's labour...	Lightkeeper.....	393 57
Caribou island..	Completion of the erection of an 80-ft. reinforced concrete tower	"	T. H. Brewer.....	606 77
Cove island.....	Repairs and alterations to fog alarm.....	"	W. H. Roebuck.....	547 11
Croker, cape....	Improving boilers at station....	"	W. H. Roebuck.....	66 90
Mississagi strait.	Repairs to wharf and providing for additional coal storage. (Will be completed during season 1912-1913).....	"	J. H. Ball, lightkeeper..	331 16
Muskoka river..	Repairs to dolphin lights.....	"	F. Beaumont.....	42 30
Onderdonk point	Purchase of site of existing light-house.....		Union Trust Co. and E. J. Butler.....	100 00
Owen Sound.....	Re-building of back range tower, damaged by fire.....	Day's labour...	T. H. Brewer.....	1,003 16
Port Elgin.....	Establishment of a day beacon and improvements to range light buildings.....	"	Lightkeeper.....	86 40
Prescott depot..	Material taken in stock, later to be charged out against the several light stations; also pay of staff and upkeep of depot....			111,472 66
Presqu'île.....	Establishment of a telephone line between Presqu'île and Brighton.....	Contract.....	W. W. Porte, Brighton..	500 00
Red rock.....	(1) Erection of a 57-ft. reinforced concrete tower surmounted by a polygonal iron lantern.....	Day's labour...	M. J. Egan.....	14,596 87
	(2) Provision of a 1½" diaphone plant to be put up next season.	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	2,227 21
Southampton...	Repairs to front range light tower	Day's labour...	C. W. Conway.....	251 67
Thornbury.....	Erection of a 27-foot high sq. wooden tower, surmounted by a wooden lantern.....	"	J. J. Shaver.....	691 44
Thunder cape....	Improvements to fog alarm plant	"	W. H. Roebuck.....	215 34
Welcome islands	Extensive repairs to fog alarm plant and building a new oil shed.....	"	W. H. Roebuck.....	772 85
Western islands..	Repairing boiler.....	"	W. H. Roebuck.....	357 43
Wolfe island.....	Erection of a 33-foot standard wooden tower and lantern, re-replacing worn-out building....	"	M. J. Egan.....	756 33
Miscellaneous expenses.....	Including travelling expenses of officers, salaries and travelling expenses of temporary help, erectors, &c.....			4,239 67
				139,258 84

BRITISH COLUMBIA.

NEW AIDS TO NAVIGATION.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Canoe rock.....	Establishment of an unwatched light on a concrete base surmounted by a pyramidal steel frame supporting the lantern. (Will be completed during the season 1912-1913).....	Day's labour...	L. Cullison.....	236 35
First narrows....	Erection of two wooden echo-boards.....	Contract.....	Thos. Stedham, Vancouver.....	1,845 00 73 80
Flat rock.....	Inspection fees, &c..... Materials for the erection of an acetylene beacon, to be built next season.....			91 27
Holland island..	Provision of a Class "A" diaphone plant, to be erected next season in conjunction with the establishment of a station in place of existing unwatched light.....	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	1,515 12
Langara island..	(1) Provision of a Class "E" fog alarm plant and duplicate machinery.....	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	10,200 93
	(2) Provision of a first order single flashing light.....	"	Chance Bros. Co., Birmingham, Eng.....	14,225 27
Langford point..	Work now under way for the establishment of a first-class light and fog alarm plant. (Will be continued during the coming season)..... Materials for the establishment of an acetylene beacon to be erected next season.....	Day's labour...	R. Chrystal.....	22,155 50 91 27
McLoughlin pt..	(1) Provision of a Class "A" diaphone plant.....	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	1,515 11
	(2) Installation of above plant and erection of a small standard fog alarm building. (Will be completed during season 1912-1913).....	Day's labour...	Jas. Robinson.....	2,842 76
Prince Rupert...	Establishment of a depot, comprising dwellings, workshops, machinery and a deep water wharf.....	Contract.....	Pacific Coast Construction Co.....	156,813 31
Sheringham pt..	Purchase of site, &c., in connection with the erection of a light house and outbuildings, to be carried out next season.....			226 02
Triangle island..	Completion of the erection of a reinforced concrete tower.....	Day's labour...	J. D. Macdonald.....	339 00
Buoys and beacons.....				165 30

SESSIONAL PAPER No. 21

BRITISH COLUMBIA—Continued.
CHANGES AND IMPROVEMENTS IN EXISTING AIDS.

Lightstation.	Nature of the work.	How performed.	Contractor or foreman.	Expenditure during fiscal year.
				\$ cts.
Active Pass.....	Provision of a class "D" diaphone plant to replace fog horn	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	6,601 25
Atkinson point...	Installation of machinery..... Provision of a 3" diaphone and Class "C" duplicate air compressing plant, to be put up during the next season.....	Day's labour...	A. Fairfull.....	1,936 19
Ballenas islands.	Erection of a new dwelling..... Building a boathouse, slip and windlass..... Moving the existing light to a new site.....	Furnished under general contract	Canadian Fog Signal Co. Toronto.....	5,074 10
	Labour and material on the installation of a duplicate fog alarm to be completed during next season.....	Day's labour..	Frank Swank..... A. Fairfull.....	3,588 64
First narrows.....	Preliminary work on the proposed erection of a fog alarm building and improvement to the existing light.....	Day's labour...	J. T. Bruce.....	576 98
Ivory island.....	Materials and machinery bought in connection with proposed improvements to fog alarm plant.....			220 55
Portlock point...	Erection of a boathouse and boatways.....	"	John Ford.....	467 44
Prospect point...	Repairs to light station.....	"	J. T. Bruce.....	110 46
Sand heads.....	Dismantling lighthouse.....	"	C. Fischer.....	255 55
Sisters.....	Materials and machinery bought in connection with proposed improvements to fog alarm plant.....			496 68
West coast, Vancouver island..	Erection of shelter huts containing provisions and directions for the use of shipwrecked mariners. (Will be completed next season).....	Day's labour...	{ J. Chesterman..... E. Williams..... }	151 23
West coast trails	Work done during season: nine miles. This trail will be completed to Carmanah during next season.....	"	{ J. Chesterman..... E. Williams..... }	20,988 88
Yellow island...	Extensive repairs to station.....	"	A. Fairfull.....	903 65
Yuquot.....	Erection of boatways.....	"	L. Cullison.....	306 18
Miscellaneous expenses.....	Including salaries of foremen, travelling expenses of local officers, &c.....			4,462 67
				46,140 40

HEADQUARTERS.

Miscellaneous expenses.....	Including travelling expenses of officers, blue print work, unforeseen office expenses, photographic work, &c. Also one 3rd order illuminating apparatus complete, to be charged against proper station when erected.....			12,424 61
			Grand total.....	\$762,488 89

WM. P. ANDERSON, M. Inst. C. E.,
Chief Engineer.

APPENDIX No. 2.

ANNUAL REPORT OF THE COMMISSIONER OF LIGHTS.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit the ninth annual report of this branch. The principal work performed has been an extension of the gas buoy and beacon service throughout the various provinces, together with the maintenance of lights and other aids to navigation throughout the Dominion. The operations of the branch are reduced to tabular form in the following four enclosures, namely:—

Enclosure No. 1.—Statement by provinces showing the number of lights of the several orders, lightships, lightboats, lightkeepers, fog alarm stations, warning buoys and submarine bells.

Enclosure No. 2.—Statement showing the names of light-stations and lightkeepers.

Enclosure No. 3.—Statement giving a complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year, 1911-12.

Enclosure No. 4.—Statement giving a complete list of stations at which unlighted buoys were in operation throughout the Dominion during the fiscal year 1911-12.

In conclusion I desire to express and record my appreciation of the able assistance rendered by my staff, and the untiring application to duty exhibited by each member. It would not have been possible to carry out the large and increasing amount of work which is devolving upon this branch without the co-operation of all the officers connected with it.

I have the honour to be, sir,

Your obedient servant,

J. G. MACPHAIL,

Commissioner.

Office of the Commissioner of Lights,
Department of Marine and Fisheries,
Ottawa, April 1, 1912.

SESSIONAL PAPER No. 21

(ENCLOSURE No. 1.)

STATEMENT, by provinces, showing the number of lights of the several orders, lightships, lightboats, lightkeepers, fog alarm stations, warning buoys and submarine bells.

	1st order lights.	2nd order lights.	3rd order lights.	4th order lights.	5th order lights.	6th order lights.	7th order lights.	Pressed lens lights.	Catoptric lights.	Electric bulb lights.	Total.	Lightships.	Lightboats.	Lightkeepers.	Fog alarm stations only.	Diaphones.	Fog guns and bombs.	Fog whistles.	Sirens.	Fog bells.	Hand fog horns.	Hand fog bells.	Gas buoys.	Whistling bouys.	Bell buoys.	Submarine bells.	
New Brunswick.....		1	5	11	11	10	63	10	39	1	151	1	1	122	4	8	...	6	2	...	4	20	...	17	3	10	1
Nova Scotia.....	4	4	8	17	19	32	66	26	108	5	289	2	...	266	1	15	...	1	5	...	6	49	...	40	18	46	4
Prince Edward Island.....		1		10		1	6	3	58		79			49		1	1	1	...				6	2	2		
Quebec.....	5	7	14	15	7	11	48	20	79		206	5	...	148	2	22	7	1	3	1	...	19	2	35	3	2	4
Montreal.....				10	4	3	36	34	110		267	2	...	137									72				
Ontario.....		5	7	35	9	15	121	39	92	6	339	1	...	190		23		1	3	1	8	38		93		4	1
Manitoba.....				1	2		4		4		11		...	7							4						
British Columbia.....	4	1	2	5	8	3	63	15	6	3	110	1	...	56	2	14		3	...	11	5		18	2	1		
Totals.....	13	19	36	104	60	75	407	147	496	15	1452	12	1	975	9	83	9	14	13	2	29	137	2	281	27	65	10

3 GEORGE V., A. 1913

The above number of lights does not include those shown from gas buoys. Fog alarm stations only are in charge of keepers and these are included in the number of lightkeepers.

Besides the above mentioned lights there are the following lights, listed in the List of Lights, which are not under the control of the department:—

New Brunswick.. . . .	1
Nova Scotia.. . . .	3
Quebec.. . . .	2
Montreal.. . . .	7
Ontario.. . . .	20
British Columbia.. . . .	4
Total.. . . .	37

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.

PRINCE EDWARD ISLAND AGENCY.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Alberton.....	J. A. Leavitt.....	Nov. 2, 1910..	125 00
Annandale range.....	A. Robertson.....	Oct. 5, 1898..	180 00
Bear, Cape.....	M. L. Jordan.....	April 12, 1905..	520 00
Big Tignish range.....	A. Gaudet.....	Aug. 30, 1897..	220 00
Block house point.....	A. S. McNeill.....	Mar. 25, 1901..	520 00
Brighton beach range.....	J. Purcell.....	Dec. 16, 1911..	320 00
Brush wharf range.....	D. W. McPherson.....	Jan. 13, 1899..	120 00
Cardigan river.....	J. D. Morrison.....	Aug. 15, 1901..	140 00
Casumpeque.....	J. C. Tuplin.....	May 5, 1897..	440 00
Covehead range.....	J. McCabe.....	Dec. 20, 1911..	120 00
Darnley basin range.....	C. Taylor.....	June 14, 1897..	120 00
Darnley point range.....	G. W. Wiggins.....	Oct. 16, 1896..	220 00
Douse point range.....	J. Macdonald.....	June 25, 1879..	120 00
East point.....	R. J. McDonald.....	July 1, 1903..	980 00
East Souris.....	J. D. Lavoie.....	June 23, 1905..	520 00
Egmont, Cape.....	J. J. D. Gallant.....	Oct. 21, 1902..	380 00
Fish island range.....	J. A. L. McLellan.....	June 29, 1910..	335 00
Georgetown (front).....	G. Connor.....	June 3, 1901..	220 00
Georgetown (back).....	J. Clarke.....	Aug. 14, 1901..	220 00
Georgetown wharf.....	L. J. Westaway.....	Jan. 16, 1906..	180 00
Haszard point range.....	E. Stewart.....	June 11, 1910..	275 00
Indian point.....	J. S. Allen.....	May 18, 1898..	520 00
Leards range (outer).....	A. J. Howatt.....	July 22, 1893..	180 00
Leards range (inner).....	K. C. Holm.....	May 22, 1912..	140 00
Little Channel range.....	W. Hardy.....	July 26, 1875..	180 00
Miminegash (front).....	P. O'Brien.....	May 14, 1897..	120 00
Miminegash (back).....	E. Costain.....	May 18, 1906..	120 00
Murray harbour (front).....	Wm. McLeod (temp.).....	Mar. 1, 1912..	120 00
Murray harbour (back).....	R. Penny.....	Nov. 11, 1897..	120 00
North point.....	J. Phee.....	Sept. 4, 1897..	440 00
London, New range.....	J. W. McLeod.....	Jan. 29, 1896..	220 00
Northport range.....	W. Champion.....	Oct. 25, 1897..	180 00
North Rustico ranges.....	J. N. Pino.....	Feb. 6, 1897..	220 00
Panmure head light and fog alarm.....	W. E. Graham.....	Aug. 13, 1910..	490 00
	M. Condon (Engineer).....	Aug. 10, 1908..	490 00
Prim point.....	A. J. McRae.....	Sept. 11, 1909..	395 00
Savage harbour range.....	J. A. McDonald.....	July 11, 1889..	180 00
Sea Cow head.....	M. P. O'Raneghan.....	April 21, 1873..	440 00
Summerside (back).....	G. W. Bell.....	April 3, 1909..	130 00
Summerside (front).....	J. Fraser.....	April 12, 1897..	180 00
St. Peters island.....	J. W. Taylor.....	May 1, 1897..	380 00

SESSIONAL PAPER No. 21

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

PRINCE EDWARD ISLAND AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
St. Peters range.....	A. Anderson.....	July 25, 1900..	220 00
Tracadie range.....	W. A. McDonald.....	Dec. 22, 1911..	140 00
Tryon, Cape.....	W. Bell.....	Mar. 17, 1905..	380 00
Warren farm range.....	A. S. McNeill.....	May 16, 1907..	140 00
West point.....	W. McDonald.....	Aug. 22, 1876..	440 00
Wood island.....	R. W. McKay.....	April —, 1899..	380 00
Wood island harbour range.....	J. Young.....	Nov. 14, 1902..	140 00
Wrights range.....	C. L. Wright.....	June 14, 1894..	180 00

NOVA SCOTIA AGENCY.

Abbot harbour.....	W. H. B'Entremont.....	May 22, 1888..	140 00
Aconi point.....	J. C. Bonner.....	Nov. 6, 1903..	320 00
Advocate harbour.....	J. H. Morris.....	Aug. 10, 1904..	380 00
Amet island.....	L. Rogers.....	Nov. 11, 1902..	600 00
Amherst basin range.....	W. Shea.....	May 21, 1908..	260 00
Amherst point wharf.....	W. A. Downey.....	May 3, 1909..	110 00
Annapolis.....	J. McMullin.....	Feb. 18, 1908..	140 00
Apple river.....	H. E. Elderkin.....	Mar. 31, 1905..	980 00
Ardoise, Lower (front).....	M. J. Sampson.....	July 6, 1909..	90 00
Ardoise, Lower (back).....	T. Brymer.....	July 6, 1909..	90 00
Argyle.....	C. A. Amiro.....	Nov. 9, 1897..	600 00
*Arichat.....	W. LeVash.....	Oct. 17, 1898..	380 00
Arichat West (front).....	E. Delorey.....	Feb. 20, 1906..	140 00
Arichat West (back).....	M. Gerrior.....	Feb. 20, 1906..	140 00
Arichat West wharf.....	C. Forrest.....	Nov. 8, 1911..	80 00
Arisaig.....	H. R. McAdam.....	Nov. 14, 1895..	180 00
Avon river bridges.....	Windsor Electric Co.....	1906..	200 00
*Baccaro.....	W. L. Smith.....	Nov. 21, 1907..	600 00
Barrington lightship.....	J. H. Lyons.....	June 18, 1897..	980 00
*Battery point.....	H. Mass.....	Mar. 12, 1897..	440 00
Bass river.....	D. Vance.....	Oct. 24, 1907..	140 00
*Bear island.....	M. O'Brien.....	Aug. 31, 1906..	380 00
Bear river.....	W. Hunt.....	April 10, 1905..	260 00
Beaver harbour.....	L. G. Cameron.....	Feb. 15, 1902..	220 00
Beaver island.....	T. Sampson.....	Oct. 13, 1892..	140 00
Beaver island, S. E. coast.....	W. E. O'Leary.....	Feb. 22, 1900..	1080 00
Belliveau.....	J. H. Belliveau.....	Feb. 16, 1889..	140 00
Betty island.....	P. Christian.....	June 29, 1904..	680 00
*Bickerton, Port.....	T. O'Hara.....	Jan. 26, 1901..	260 00
Bigelow point range.....	E. Mitchel.....	Mar. 31, 1909..	160 00
Bird island.....	H. G. McKay.....	May 21, 1901..	600 00
Black rock.....	C. Robinson.....	Mar. 16, 1885..	440 00
Black rock point.....	M. D. Morrison.....	June 8, 1892..	380 00
Boars head.....	F. Ruggles.....	May 24, 1901..	520 00
*Bon portage.....	A. C. Greenwood.....	Jan. 14, 1907..	520 00
Borden wharf.....	F. R. Clark.....	April 29, 1904..	170 00
Bourgeois, inlet.....	M. Burke.....	Dec. 1, 1902..	120 00
Briar island.....	J. M. Peters (lightkeeper).....	June 6, 1901..	565 42
	B. H. Morrell (engineer).....	June 6, 1901..	614 58
Brooklyn pier.....	H. Godfrey.....	Mar. 25, 1909..	130 00
Budget.....	F. Prie.....	Nov. 20, 1905..	320 00
*Bunker island.....	F. H. Doane.....	July 27, 1904..	520 00
Bunker island N.E.....	J. H. Scoville.....	Jan. 9, 1907..	320 00
Burntcoat.....	W. Y. Faulkner.....	June 22, 1898..	380 00
Campbell island.....	B. A. McDonald.....	July 13, 1911..	180 00
*Candlebox island.....	B. LeBlanc.....	Nov. 1, 1892..	440 00
*Canso harbour.....	J. Long.....	Dec. 31, 1896..	440 00
Canso range.....	W. J. Matthews.....	Dec. 17, 1904..	320 00
Canso North.....	R. McKay.....	Feb. 4, 1882..	440 00
Caribou island.....	D. Faulkner.....	Dec. 20, 1902..	520 00

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NOVA SCOTIA AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
*Carter island.....	R. McDonald.....	Sept. 28, 1896..	380 00
Caveau point range.....	J. Chaisson.....	Aug. 20, 1897..	260 00
Charlo harbour range.....	A. Richard.....	Dec. 8, 1911..	220 00
Chebucto head.....	R. Holland.....	Aug. 31, 1906..	1,180 00
*Chester.....	U. Young.....	Feb. 15, 1884..	600 00
Cheticamp.....	M. Muise.....	Nov. 27, 1896..	440 00
Cheticamp harbour range.....	P. Bourgeois.....	May 23, 1898..	260 00
Cheverie.....	S. Clark.....	July 8, 1911..	80 00
Church point.....	J. H. Saulnier.....	Aug. 8, 1878..	260 00
Clarke Cove range.....	A. Campbell (temp).....	Sept. 15, 1910..	150 00
Coffin island.....	J. E. Wentzell.....	June 2, 1909..	560 00
Cold Spring head.....	W. VanEmbarg.....	Oct. 6, 1909..	220 00
Cole harbour range.....	G. C. Jamieson.....	Oct. 21, 1898..	260 00
Cole harbour.....	W. M. Munroe.....	April 23, 1907..	120 00
Country harbour.....	H. Burke.....	June 11, 1902..	600 00
Cranberry island.....	J. P. Hanlon.....	Aug. 25, 1905..	1,180 00
Crichton head.....	H. H. Crichton.....	May 6, 1874..	320 00
Cross island.....	C. Whynacht (temp).....	June 20, 1910..	1,030 00
Croucher island.....	G. Croucher.....	Jan. 31, 1883..	440 00
Dartmouth.....	W. Patterson.....	June 3, 1903..	180 00
Devil islands lights.....	W. G. Fulker.....	May 3, 1886..	680 00
Digby pier.....	E. Beamen.....	May 29, 1897..	140 00
Dimock point, lights.....	Windsor Electric Co.....	1906..	130 00
Dog island.....	S. Joyce.....	July 4, 1884..	260 00
Dover.....	E. Moreash.....	Sept. 24, 1906..	320 00
East point harbour.....	C. E. Mason.....	May 23, 1911..	100 00
Etonville.....	S. Mcalcese.....	April 26, 1909..	90 00
Economy.....	E. McLellan.....	Mar. 8, 1912..	80 00
*Eddy point.....	E. Mundell.....	July 28, 1903..	600 00
*Egg island.....	H. M. Stoddard.....	Mar. 22, 1909..	640 00
Felix, Port.....	W. C. Boudrot.....	July 16, 1902..	380 00
Fisherman harbour.....	T. Beiswanger.....	Jan. 19, 1906..	260 00
Flat point.....	C. M. Peters (lightkeeper).....	April 13, 1910..	565 42
	(T. O'Neill (engineer).....	May 2, 1904..	614 58
Flint island.....	A. McLeod.....	May 22, 1911..	1,200 00
*Fort point.....	J. Misener.....	May 16, 1896..	260 00
Forchu, cape.....	T. S. Doane.....	Dec. 31, 1904..	1,180 00
Forchu head.....	G. Hardy.....	June 16, 1909..	200 00
Freels, cape.....	M. Myrick.....	Sept. 26, 1910..	1,030 00
Friar head.....	M. Doucette.....	Nov. 18, 1911..	80 00
Gabarouse.....	J. McDonald.....	Dec. 10, 1908..	305 00
George, cape.....	A. L. McEachren.....	Sept. 16, 1898..	680 00
*George island.....	R. Ross.....	Jan. 17, 1885..	380 00
George, port.....	G. M. Foster.....	Nov. 19, 1897..	190 00
Gilbert point.....	J. W. Melanson.....	Aug. 18, 1904..	300 00
Gillis point.....	H. McLean.....	Dec. 18, 1897..	260 00
Glace Bay (front).....	M. McNeill.....	Nov. 19, 1907..	140 00
Glace Bay (back).....	A. McFarlane.....	Nov. 19, 1907..	140 00
Glasgow point.....	A. Clory.....	July 25, 1894..	260 00
Grande Digue.....	D. A. Kaulback.....	Feb. 12, 1909..	110 00
Grand Etang.....	S. LeBlanc.....	Mar. 25, 1905..	120 00
*Grand Passage.....	C. Buckman.....	Jan. 7, 1901..	380 00
Granville Centre.....	H. Roney.....	Feb. 24, 1904..	140 00
Great Bras D'Or (front).....	M. McLean.....	Jan. 13, 1903..	140 00
Great Bras D'Or (back).....	A. Fraser.....	Jan. 13, 1903..	180 00
Green island.....	W. A. Duann.....	May 20, 1902..	680 00
Green island, Lunenburg.....	M. B. Pearl.....	Aug. 11, 1908..	680 00
Gregory island.....	M. Sampson.....	May 11, 1907..	260 00
Greville, Port, range.....	E. A. Hatfield.....	June 29, 1908..	320 00
Guyon island.....	J. W. Hardy.....	Jan. 30, 1903..	680 00
*Guysborough harbour.....	M. C. Scott.....	April 19, 1884..	320 00
Hall harbour.....	E. McDonald.....	Aug. 10, 1911..	180 00

*\$25 for blowing hand fog horn.

SESSIONAL PAPER No. 21

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NOVA SCOTIA AGENCY—Continueud.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Hampton.....	H. Foster.....	Dec. 2, 1911	180 00
Harbour island.....	A. I. Luddington.....	Feb. 3, 1912	380 00
Harbour au Bouche.....	P. Webb.....	Feb. 19, 1896	380 00
Haute, Isle aux.....	P. E. Morris.....	Aug. 2, 1904	680 00
Hebert, Port.....	W. Burgess.....	July 20, 1892	260 00
Henry island.....	D. A. McLennan.....	Aug. 3, 1907	600 00
Herring cove.....	W. Brackett.....	Aug. 28, 1897	180 00
Highland village.....	Noble Chisholm.....	Feb. 23, 1912	80 00
Hobson island.....	J. B. Smeltzer.....	April 10, 1900	440 00
Hood, Por.....	J. A. McDonald.....	May 10, 1880	380 00
Horton.....	Mrs. S. M. Rathburn.....	Sept. 3, 1879	380 00
Hubbard cove.....	A. S. Coolin.....	Oct. 31, 1903	380 00
Indian harbour.....	H. Boutlier.....	June 6, 1901	260 00
Ingonish harbour.....	G. A. Hines.....	April 17, 1909	240 00
Ingonish island.....	R. F. Warren.....	Sept. 17, 1903	520 00
Iona.....	F. X. S. McNeil.....	Nov. 16, 1901	180 00
*Isaac harbour.....	I. L. Giffin.....	April 28, 1894	380 00
Jedore harbour range.....	J. Harpell, Jr.....	Jan. 21, 1901	320 00
Jedore rock.....	J. W. Mitchel.....	Sept. 29, 1882	600 00
*Jerome point.....	J. McAskill.....	July 30, 1901	380 00
*Jerseyman island.....	A. Theriault.....	May 31, 1905	440 00
Jordon.....	J. Fredericks.....	Dec. 19, 1906	180 00
Ketch harbour.....	C. Martin.....	May 19, 1905	140 00
Kidstone island.....	D. McRae.....	May 17, 1892	320 00
*Kingsport.....	J. P. Corkum.....	Feb. 19, 1912	140 00
*Lahave.....	W. H. Palmer.....	May 22, 1878	320 00
L'Adoise Lingan head.....	J. Kelly.....	Dec. 2, 1911	260 00
*Liscomb.....	J. S. Hemlow.....	Jan. 2, 1903	520 00
Little Dyke.....	S. Stewart.....	May 1, 1906	100 00
Little Hope.....	A. Doggatt.....	Dec. 11, 1908	980 00
Little Lorraine.....	P. Gallant.....	Jan. 19, 1900	180 00
Little Narrows.....	A. W. Ross.....	May 23, 1902	220 00
*Lockeport.....	L. D. Orchard.....	Jan. 1, 1877	600 00
Lorne, Port.....	G. D. Corbett.....	May 31, 1904	380 00
Louisburg.....	P. Price (lightkeeper).....	Nov. 8, 1897	396 85
Louisburg range.....	D. A. Campbell (engineer).....	May 20, 1902	1,043 15
Mabou (front).....	T. Commington.....	Oct. 26, 1897	320 00
Mabou (back).....	E. Doyle.....	June 14, 1897	120 00
McKenzie point.....	R. McLean.....	Dec. 7, 1906	120 00
*McMillan point.....	D. McAuley.....	April 24, 1909	240 00
McNab's island.....	J. H. Chisholm.....	March 31, 1906	260 00
McNeil's beach.....	M. Lynch.....	June 23, 1905	440 00
*Main-a-Dieu.....	L. McNeil.....	Aug. 6, 1884	125 00
*Maitland, Port.....	J. Popes.....	Sept. 11, 1902	440 00
Maitland wharf.....	A. J. Sallows.....	Dec. 28, 1900	260 00
Man-o'-War point.....	L. Lawrence.....	Feb. 28, 1911	80 00
Margaree.....	M. M. McLeod.....	Jan. 5, 1912	120 00
Margaree harbour (front).....	J. A. McRae.....	Feb. 28, 1907	600 00
Margaree harbour (back).....	M. A. Dunn.....	May 12, 1903	120 00
Margaretville.....	M. McLennan.....	June 8, 1901	120 00
Marjorie island.....	J. Cleveland.....	Jan. 15, 1912	260 00
*Mary Joseph.....	M. McDonald.....	Sept. 22, 1909	160 00
Masstown.....	U. M. Turner.....	May 13, 1910	360 00
Mauger beach.....	G. W. Vance.....	June 29, 1898	100 00
Medway.....	W. Icceton, Sr.....	July 8, 1903	980 00
Medway head.....	S. T. Foster.....	Mar. 20, 1900	140 00
Meteghan river.....	W. P. Aitkins.....	Nov. 2, 1909	350 00
Minudie.....	J. A. Mealson.....	Dec. 7, 1911	140 00
Mitchener.....	F. Vernon.....	May 3, 1909	90 00
*Moser island.....	W. A. Currie.....	June 15, 1908	260 00
*Mouton, Port.....	S. Moser.....	Nov. 6, 1885	440 00
Mullins point range.....	O. J. Kemp.....	April 29, 1898	440 00
Munroe point.....	J. Mullins.....	June 8, 1892	320 00
	M. Buchanan.....	Oct. 25, 1905	220 00

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NOVA SCOTIA AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ 1 cts.
Musquodoboit (front) ^a	J. Kent (F. S. Kent)	April 29, 1904	260 00
Musquodoboit (back)	A. M. Kent	Nov. 20, 1908	170 00
Negro island	B. Nickerson	July 26, 1897	520 00
*Neill harbour	G. Sweet, Jr.	Aug. 11, 1911	220 00
Noel	G. C. Davidson	April 25, 1906	140 00
North, Cape	N. McLeod (lightkeeper)	Oct. 14, 1899	525 00
North East Harbour range	J. G. McAskill (engineer)	May 29, 1911	700 00
Or, Cap d'	L. Perry	June 17, 1899	320 00
*Ouetique island	F. H. P. Dewis	April 13, 1898	980 00
Owl's head	F. A. Burke	Feb. 16, 1907	520 00
*Page island	S. W. Blaxland	Dec. 2, 1911	380 00
Parker cove	A. N. Powell	Feb. 17, 1906	320 00
*Parrsboro	T. Milner	Aug. 7, 1909	160 00
*Pease island	W. J. Simpson	Oct. 27, 1911	440 00
Peggy point	T. Baker	May 19, 1879	520 00
Pennant harbour	S. H. Garrison	Dec. 22, 1902	520 00
*Petitdegat	P. A. Gray	June 30, 1903	180 00
Pictou Bar	E. Landry	Feb. 23, 1897	320 00
Pictou custom house	G. Carmichael	Nov. 12, 1910	540 00
Pictou harbour	A. Curry	Oct. 3, 1910	125 00
Pictou island S.E.	D. Lowden	July 12, 1897	320 00
Pictou island, W.E.	A. McFarlane	June 8, 1892	600 00
Pictou island wharf	C. D. Patterson	Mar. 29, 1905	600 00
Piper cove	J. McLean	Dec. 22, 1911	120 00
Pomquet island	J. C. McNeil	Dec. 18, 1897	220 00
Pope harbour	M. Murphy	Dec. 18, 1890	520 00
Portapique	J. Abriel	Nov. 18, 1911	380 00
Porter point	E. Carr	Feb. 20, 1912	80 00
*Poulamon	Frederick W. Bishop	April 29, 1904	180 00
Prim point	B. Boudrot	Dec. 7, 1904	320 00
*Pubnico harbour	W. E. Ellis	Feb. 24, 1875	1,180 00
Pugwash	G. D. Amiro	Feb. 6, 1893	440 00
*Quaker island	M. McLeod	Dec. 10, 1897	440 00
*Queensport	E. Fader	Feb. 9, 1910	395 00
Race, Cape	W. E. Ehler	Aug. 13, 1906	440 00
Red island	J. Myrick	Nov. 1, 1897	2,300 00
*Redman head	J. P. Campbell	Nov. 30, 1901	180 00
Ronde, Cape la	J. Cross	Sept. 10, 1909	240 00
Roseway, Cape	J. J. Mauger	Nov. 16, 1898	520 00
Sable, Cape	J. L. McKenna	Mar. 31, 1899	1,180 00
Sable island, E.E.	A. H. Cunningham	July 16, 1902	1,180 00
Sable island, W.E.	J. Gregoire		225 00
*Sable Island, Cape, west head	J. Edwards		225 00
St. Ann harbour	W. B. Smith, Jr.	April 12, 1890	320 00
St. Esprit island	A. Nicholson	June 5, 1905	260 00
*St. George, Cape	A. W. Finlayson	April 12, 1905	680 00
St. Lawrence, Cape	John Murray	Nov. 3, 1882	320 00
St. Mary, Cape	C. Jamieson	Sept. 21, 1893	600 00
St. Paul island, N.E.	B. H. Robichau	July 5, 1886	520 00
St. Paul island, S.W.	W. Giles (Lightkeeper)	Oct. 21, 1907	600 00
Salter head	J. McLeod (Engineer)	May 5, 1911	840 00
Sambro	J. Dauphiney	Sept. 26, 1910	620 00
Sambro harbour	C. Smith	June 21, 1888	120 00
Sambro inner island	H. H. Gilkie	Jan. 8, 1877	980 00
*Sand Spit	J. H. Finlay	Dec. 7, 1899	180 00
Scatarie	E. Smith	Jan. 3, 1908	180 00
Seal island, S.E. coast	J. G. Stevens	Mar. 11, 1903	380 00
Shafner point	J. T. Martell	July 30, 1887	1,440 00
Sharp, Cape	J. Crowell	Oct. 14, 1896	1,180 00
Sheet Harbour passage	J. W. Robblee	May 29, 1897	260 00
*Sheet rock	F. Yorke	June 30, 1902	980 00
*Ship harbour	G. W. Wambolt (temp.)	Dec. 25, 1911	100 00
	S. Kenny	June 2, 1909	640 00
	H. Palmer	Oct. 14, 1899	380 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NOVA SCOTIA AGENCY—Continueud.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Shulie.....	C. Patterson.....	Oct. 26, 1905..	260 00
Sissiboo.....	J. Amiro.....	July 11, 1899..	320 00
Spencer island.....	B. McLennan.....	July 21, 1904..	180 00
Spencer point.....	R. A. Spencer.....	April 1, 1870..	180 00
Steven point range.....	H. C. Clarke.....	Mar. 31, 1909..	155 00
*Stoddart island.....	E. Larkin.....	Mar. 18, 1896..	320 00
Sidney bar.....	G. Nunn.....	June 20, 1872..	440 00
Sidney range (front).....	J. B. Rudderham.....	June 15, 1905..	380 00
Sidney range (back).....	A. J. Lewis.....	May 2, 1905..	260 00
Terence bay.....	S. P. Slaunwhite.....	Oct. 13, 1903..	180 00
Three Top island.....	W. L. Munroe.....	Oct. 28, 1879..	440 00
*Torbay.....	J. M. Webber.....	May 10, 1898..	440 00
Troop point.....	R. Troop.....	Aug. 13, 1906..	180 00
Tupper, Point.....	D. Gillis.....	Feb. 6, 1906..	440 00
Tusket river.....	S. LeBlanc.....	Aug. 2, 1889..	380 00
Victoria beach.....	J. Hines.....	Mar. 7, 1901..	180 00
Wade, Port.....	C. Slocun.....	Feb. 12, 1909..	120 00
Wallace Harbour range.....	G. Boyle.....	May 23, 1905..	260 00
Walton harbour.....	Steven Brown.....	Dec. 16, 1911..	220 00
*Wedge Island.....	W. R. Church.....	Mar. 22, 1907..	680 00
West Ironbound island.....	E. W. Wolfe.....	Dec. 19, 1910..	395 00
*Westport.....	E. W. Suthern.....	April 12, 1890..	520 00
*Whitehead island.....	A. Munroe.....	Jan. 15, 1912..	600 00
Whycocomagh.....	M. Matheson.....	Sept. 11, 1884..	120 00
Wolfville.....	J. L. Franklyn.....	April 4, 1902..	180 00
*Woods harbour.....	J. Goodwin.....	Aug. 27, 1900..	320 00
Yarmouth Corner beacon.....	C. J. O'Hanly.....	Oct. 17, 1905..	260 00

NEW BRUNSWICK AGENCY.

*Anderson Hollow breakwater.....	J. E. Moore.....	Jan. 16, 1911..	140 00
Bathurst range.....	G. C. Sutherland.....	Mar. 20, 1882..	320 00
Barnes point.....	C. W. Barnes.....	Aug. 16, 1911..	140 00
Belloni point.....	E. H. Egan.....	May 17, 1892..	220 00
Relyea point.....	Mrs. Westfield Day.....	Oct. 19, 1906..	140 00
*Big Shippigan.....	L. DeGrace.....	June 29, 1910..	335 00
*Bliss island.....	J. H. McLeod.....	Oct. 17, 1900..	600 00
Bridges point.....	A. B. Bridges.....	Oct. 23, 1911..	120 00
Buctouche bar.....	J. P. Cormier.....	July 26, 1902..	320 00
Buctouche range.....	H. B. Robicheaux.....	June 21, 1884..	260 00
Buctouche inner range.....	D. O. Maillet.....	July 7, 1883..	260 00
Campbellton range.....	G. Cummings.....	Jan. 1, 1880..	180 00
Caraquet island.....	G. Lantaigne.....	June 16, 1888..	320 00
Caraquet range (front).....	F. F. Doucet, Jr.....	Oct. 14, 1903..	120 00
Caraquet range (back).....	P. L. Legeré.....	Oct. 14, 1903..	120 00
*Cassie point.....	P. D. Legeré.....	June 21, 1909..	350 00
Cedars.....	F. Williams.....	May 11, 1897..	140 00
Cherry island fog bell.....	H. Chaffey.....	Aug. 7, 1903..	260 00
Cocagne range.....	D. Gagnen.....	Oct. 14, 1907..	220 00
Cox point.....	A. McBaine.....	May 6, 1898..	140 00
Dalhousie harbour.....	J. Arsenaault.....	June 18, 1894..	180 00
Dalhousie island.....	H. A. McNeill.....	Aug. 17, 1880..	380 00
*Dipper harbour.....	F. Belmore.....	Mar. 12, 1895..	180 00
*Drew's head.....	J. M. Eldridge.....	May 2, 1904..	380 00
Duck island, Big.....	R. Burnham.....	June 25, 1906..	880 00
Enrage, Cape.....	J. G. Barbour.....	May 11, 1888..	980 00
Escuminac.....	R. R. McLennan.....	Mar. 7, 1892..	1,180 00
Fanjoy point.....	W. C. Kennedy.....	Jan. 17, 1912..	120 00
Flewelling landing.....	M. Flewelling.....	April 20, 1890..	140 00
*Folly point.....	A. P. Belliveau.....	June 23, 1905..	320 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NEW BRUNSWICK AGENCY—*Continued.*

Name of station.	Name of lightkeeper.	Appointed.	Salary.	
			\$	cts.
Fort Monckton.....	W. A. Casey.....	Nov. 30, 1908..	135	00
Fox Island ranges.....	G. Mills.....	June 23, 1897..	320	00
Gagetown.....	F. Fox.....	April 22, 1904..	140	00
Gannet rock.....	S. Tatton.....	Mar. 21, 1911..	1,260	00
Glenwood.....	H. Belyea.....	May 2, 1911..	80	00
Goose Lake.....	J. D. Brune.....	May 11, 1888..	380	00
*Grand harbour.....	L. C. Dakin.....	May 2, 1904..	600	00
Grant beach range.....	W. A. Davidson.....	April 3, 1909..	200	00
*Green head.....	T. E. Looney.....	July 1886.....	220	00
Grey's point.....	B. F. McCutcheon.....	Mar. 6, 1907..	120	00
Grindstone island.....	J. R. Russell.....	Jan. 13, 1899..	980	00
Gull cove.....	L. Frankland.....	Nov. 14, 1902..	140	00
Hampstead wharf.....	E. B. Palmer.....	Nov. 6, 1900..	140	00
Harper point.....	J. H. Blakeley.....	July 30, 1910..	125	00
Hatfield point.....	T. W. Spragg.....	June 27, 1903..	140	00
Hay island range.....	J. Allain.....	May 21, 1895..	260	00
*Head harbour.....	C. D. Hilyard.....	May 5, 1907..	1,130	00
Hendry farm.....	A. M. Hendry.....	April 28, 1899..	140	00
Heron island.....	J. A. D. Robertson.....	April 1, 1902..	320	00
Jemseg.....	G. F. Nevers.....	Nov. 24, 1884..	140	00
Jourimain.....	A. J. P. Bent.....	Jan. 25, 1901..	440	00
Kouchibouguac ranges.....	H. Gogain.....	June 26, 1908..	260	00
Lepreau.....	R. L. Belding (lightkeeper)	June 30, 1905..	480	00
	F. Frauley (engineer)	June 30, 1905..	960	00
Letite.....	S. S. Dines.....	Mar. 27, 1907..	780	00
Little Belledune.....	J. A. Roberty.....	Feb. 21, 1905..	380	00
Long Eddy point.....	G. F. Tatton.....	Oct. 16, 1886..	980	00
Long point.....	J. A. Bates.....	Oct. 11, 1907..	140	00
Machias Seal island.....	W. L. Harvey.....	July 8, 1904..	1,440	00
McFarlane point.....	A. Macfarlane.....	Dec. 3, 1909..	110	00
McMann point.....	H. R. McMann.....	Nov. 2, 1901..	140	00
Marks point.....	W. Maloney.....	Nov. 7, 1903..	220	00
Middle island.....	M. Murray.....	April 10, 1902..	320	00
Midjik bluff.....	A. Henderson.....	Oct. 4, 1894..	200	00
Miscou gully.....	R. McConnell, Jr.....	Sept. 9, 1887..	180	00
Miramichi lightship.....	R. McLean.....	April 12, 1902..	980	00
Miscou island.....	J. L. Robichaud.....	Nov. 11, 1902..	980	00
Mulholland point.....	A. Parker.....	June 13, 1901..	260	00
Musquash island.....	R. P. Macdonald.....	Jan. 28, 1901..	180	00
*Musquash.....	C. P. Harum.....	Jan. 14, 1879..	440	00
*Navy bar.....	J. Kilpatrick.....	Dec. 26, 1906..	600	00
Negro point.....	E. Ross.....	Mar. 5, 1873..	600	00
Neguac range.....	J. Robinson.....	June 30, 1896..	320	00
Neguac, lower range.....	C. McIntosh.....	Dec. 19, 1892..	180	00
Newcastle.....	R. B. Matheson.....	April 18, 1898..	140	00
Oak point, Miramichi.....	J. Bowie, Jr.....	June 2, 1906..	180	00
Oak point, St. John.....	Mrs. B. M. Francombe.....	Dec. 20, 1907..	140	00
Oromocto.....	Miss S. J. Brennan.....	Jan. 12, 1910..	160	00
Outhouse point.....	S. Edgett.....	June 14, 1910..	140	00
Palmer landing.....	B. R. Palmer.....	Dec. 22, 1911..	120	00
Partridge island.....	H. Andrews.....	Dec. 26, 1906..	1,440	00
*Pea point.....	E. C. Dickson.....	Nov. 16, 1898..	380	00
Peck point.....	E. Lockhart.....	Aug. 31, 1908..	680	00
Perry point.....	S. T. Lamb.....	Nov. 4, 1911..	120	00
Petit Rocher.....	J. D. Laplante.....	May 16, 1911..	140	00
*Pokemouche.....	M. Hayden.....	Oct. 17, 1888..	380	00
*Pokesudie.....	A. J. LeBouthillier.....	Jan. 25, 1911..	260	00
*Portage island range.....	P. Morrison, Jr.....	May 17, 1892..	380	00
Preston beach.....	S. Preston.....	July 11, 1889..	220	00
*Quaco pier.....	W. Calhoun.....	Nov. 13, 1911..	140	00
Quaco, West head.....	C. Brown (lightkeeper)	Nov. 25, 1884..	490	00
	L. B. Bradshaw (engineer)	Aug. 2, 1887..	490	00

\$25 for blowing hand fog horn.

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

NEW BRUNSWICK AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Reed's point.....	W. Lamb.....	Feb. 25, 1909..	130 00
Richibucto bar range.....	J. F. Richard.....	June 16, 1902..	260 00
Richibucto channel range.....	J. Robichaud.....	June 16, 1902..	260 00
Richibucto north beach range.....	F. McNeill.....	May 3, 1909..	200 00
Richibucto head.....	P. F. Richard.....	May 30, 1895..	320 00
Robertson point.....	C. W. Robertson.....	June 30, 1897..	140 00
St. Andrews.....	W. J. Pendleberry.....	April 10, 1889..	380 00
*St. John harbour.....	A. F. Shephard.....	Dec. 6, 1909..	560 00
St. Louis gully range.....	H. H. Chaisson.....	July 16, 1909..	160 00
Sand point.....	R. Wagner.....	June 7, 1883..	140 00
Sapin point.....	V. F. Daigle.....	May 28, 1903..	100 00
Shediac harbour.....	T. Harts.....	Feb. 17, 1905..	140 00
Shediac island.....	M. Robinson.....	Dec. 29, 1873..	380 00
Shediac, North channel.....	F. Gould.....	Jan. 13, 1899..	135 00
Sheldrake island.....	J. A. Morrison.....	Jan. 31, 1910..	350 00
Shippigan gully range.....	J. DeGrace.....	June 4, 1889..	260 00
South Tracadie.....	W. C. Ferguson.....	Mar. 23, 1898..	260 00
*South West head, Grand Manan.....	T. P. Foster.....	Sept. 26, 1910..	620 00
South west wolf.....	E. Wright.....	Mar. 6, 1906..	680 00
Spencer, Cape.....	J. E. Collins.....	June 23, 1908..	1,320 00
Spruce point.....	Mrs. B. G. Hannah.....	Sept. 15, 1892..	220 00
Stonehaven.....	Mrs. E. Scott.....	July 8, 1904..	180 00
*Swallow tail.....	G. Y. Dalzell.....	Mar. 18, 1893..	600 00
Swashway range.....	S. Williston.....	June 4, 1902..	380 00
Tiner point.....	A. Splane.....	Oct. 26, 1905..	980 00
*Tongue shoal.....	T. Rooney.....	Dec. 26, 1906..	520 00
Tormentine range, cape.....	J. R. Barry.....	Nov. 26, 1906..	220 00
Tracadie.....	F. D. Basque.....	Nov. 22, 1909..	380 00
Vin range, Baie du.....	J. McLeod.....	Oct. 13, 1909..	290 00
Wilnot bluff.....	J. H. True.....	Sept. 12, 1899..	140 00

QUEBEC AGENCY.

Amherst island.....	W. Cormier.....	April 26, 1871..	520 00
Amherst wharf.....	P. J. Brophy.....	Nov. 15, 1910..	85 00
Amour point.....	T. M. Wyatt.....	Oct. 18, 1889..	1,440 00
Cap à l'Aigle.....	J. O. A. Patry.....	Oct. 9, 1908..	1,440 00
Anse au beau fils.....	M. Lagace.....	Nov. 22, 1910..	85 00
Anse à l'Eau.....	A. Gingras.....	May 29, 1906..	100 00
Anse aux Gascons.....	J. Mourant.....	June 8, 1906..	100 00
Anse St. Jean.....	F. Lavoie.....	Mar. 13, 1889..	100 00
Heath point.....	C. Hubert.....	July 27, 1911..	980 00
Anticosti, S.W. pt.....	Z. Lemieux.....	July 25, 1900..	880 00
Bagot bluff.....	E. Laprise.....	April 18, 1903..	1,180 00
*Barachois de Malbaie.....	F. X. Lemieux.....	Mar. 6, 1903..	120 00
Pointe basse.....	A. Arseneau.....	May 17, 1911..	80 00
Cape bauld.....	E. Fontaine.....	July 15, 1905..	1,440 00
Pointe a Basile, front.....	E. Douville.....	Feb. 6, 1901..	220 00
Pointe a Basile, back.....	A. Demers.....	July 22, 1904..	220 00
Bellechasse.....	J. O. Bilodeau.....	June 15, 1903..	520 00
Belle isle, north end.....	P. Thomas.....	July 8, 1904..	1,700 00
Belle isle.....	D. Dubois.....	Sept. 26, 1910..	1,600 00
Bicquette island.....	L. Pineault.....	Oct. 6, 1900..	980 00
Bird rocks.....	Vacant.....		
Point Bleue.....	A. Tessier.....	June 9, 1904..	100 00
Little Bonaventure.....	J. P. Bujold.....	Feb. 25, 1909..	90 00
Bonaventure point.....	P. Bourdages.....	July 25, 1903..	320 00
Bonaventure river.....	A. Bourque.....	Feb. 25, 1909..	90 00

\$25 for blowing hand fog horn or fog bell.

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
*Continued.*QUEBEC AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.	
			\$	cts.
Brion island.....	P. Chevrier.....	June 23, 1905..	600	00
Brandy pots.....	A. Richard.....	Oct. 7, 1878..	600	00
Cap Brule.....	F. Filion.....	Feb. 24, 1912..	520	00
Caribou, river.....	F. Simard.....	Mar. 13, 1905..	120	00
*Carleton.....	L. Bujold.....	May 25, 1899..	440	00
Carleton wharf.....	F. L. Cullen.....	July 3, 1907..	100	00
Chat, cap.....	L. Cote.....	Dec. 3, 1901..	880	00
Chat river.....	J. Chenard.....	Dec. 15, 1911..	120	00
Chicoutimi.....	A. Harvey.....	May 30, 1889..	100	00
Chlorydorme.....	M. Coulonde.....	Oct. 15, 1904..	180	00
Clarke city.....	S. P. Grogan.....	Jan. 13, 1912..	80	00
Cap aux Corbeaux.....	E. Cunningham.....	Oct. 25, 1905..	120	00
Ile aux Coudres.....	E. Boudreault.....	April 30, 1906..	100	00
Crane island.....	D. Vezina.....	April 26, 1904..	440	00
Daniel west—Port.....	V. Horie.....	Mar. 23, 1911..	140	00
*Daniel, Port.....	F. H. Langlois.....	Feb. 22, 1907..	120	00
*D'Espoir, cape.....	C. Bourget.....	Nov. 1, 1897..	600	00
Dogs, cape.....	L. Bergeron.....	Sept. 11, 1909..	930	00
Domaine, front.....	E. Guerard.....	July 13, 1908..	120	00
Domaine, back.....	X. Emond.....	July 13, 1908..	120	00
East cape.....	G. Sergerie.....	Nov. 3, 1910..	180	00
*Eboulements, les.....	T. Tremblay.....	Aug. 24, 1910..	85	00
Egg island.....	E. Chouinard.....	May 24, 1911..	600	00
English bay.....	P. Gravel.....	June 21, 1909..	350	00
Entry island.....	G. F. Collins.....	July 30, 1901..	380	00
Escoumains.....	C. Boucher.....	Sept. 14, 1911..	80	00
Eskimo point.....	J. F. Boudreault.....	Oct. 3, 1907..	180	00
*Etang du nord.....	N. Arseneau.....	May 16, 1911..	440	00
Fame point.....	J. Aschah.....	Sept. 2, 1880..	1,440	00
Father point.....	J. Cahill.....	Mar. 16, 1912..	1,200	00
Flower island.....	J. Lavallee.....	April 12, 1905..	780	00
Gaspe, cape.....	J. Smith.....	Jan. 20, 1912..	780	00
Godbout.....	N. A. Comeau.....	Mar. 31, 1910..	125	00
*Goose cape.....	W. T. Tremblay.....	April 4, 1888..	380	00
Grand entry.....	A. Turbide.....	April 25, 1907..	125	00
Grande isle, Kamouraska.....	A. Levesque.....	Feb. 19, 1901..	600	00
Grand Pabos.....	E. Molloy.....	April 7, 1910..	85	00
*Grand river.....	W. Bisson.....	Oct. 26, 1896..	220	00
Grand river wharf.....	J. B. Couture.....	1904..	100	00
Grande Vallee.....	A. Fournier.....	Oct. 15, 1904..	180	00
Great Fox river.....	T. Dufresne.....	Dec. 1, 1911..	150	00
Green island.....	I. W. Lindsay.....	Sept. 25, 1888..	880	00
Green island wharf.....	J. Charron.....	Mar. 1, 1912..	100	00
Greenlay island.....	M. Cote.....	Aug. 11, 1908..	1,440	00
Griffin cove.....	H. Boulet.....	July 4, 1908..	180	00
Grosse roche.....	M. Morin.....	June 26, 1906..	500	00
Hospital rock.....	V. Lavoie.....	Mar. 22, 1909..	365	00
Ile-au-Belier.....	W. Gaudreault.....	Oct. 30, 1901..	180	00
Janvrin and Paddy shoals.....	K. J. Carter.....	April 6, 1911..	180	00
Little Metis.....	E. Caron.....	May 29, 1906..	540	00
Little Natashquan.....	D. Landry.....	May 13, 1910..	275	00
Long pilgrim.....	H. Morin.....	April 29, 1898..	520	00
Magdalen, cape.....	F. J. Sasseville.....	June 9, 1886..	980	00
Maggie bay.....	A. Dupuis.....	Oct. 22, 1907..	180	00
Martre, Riviere à la.....	J. Litalien.....	Mar. 5, 1912..	980	00
Matane.....	J. Bamville.....	Feb. 1, 1897..	520	00
Mai, Ile de.....	G. Poulin.....	Mar. 2, 1912..	180	00
Moisie.....	A. St. Louis.....	June 14, 1909..	150	00
Mont Louis.....	J. Lemieux.....	Jan. 3, 1912..	140	00
Monts, pointe des.....	V. Faffard.....	July 10, 1889..	880	00
*Maquereau, pointe.....	A. Bertrand.....	Dec. 21, 1877..	440	00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

QUEBEC AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ ^{cts.}
New Carlisle.....	J. Chisholm.....	Dec. 17, 1908	95 00
*Newport point.....	A. David.....	Jan. 20, 1912..	180 00
New Richmond.....	B. V. Willett.....	Oct. 16, 1903	140 00
New Richmond wharf.....	W. Campbell.....	Feb. 14, 1910..	85 00
Noire, pointe.....	J. E. Boulianne.....	Jan. 18, 1904..	320 00
Norman, cape.....	A. W. Campbell.....	July 28, 1911..	980 00
Oak point range.....	T. Harper.....	July 24, 1909..	160 00
Orignaux, pointe aux.....	D. Levesque.....	Oct. 5, 1903..	440 00
*Paspebiac.....	J. Loisel.....	Aug. 27, 1894..	260 00
*Perce.....	F. Bourget.....	Mar. 18, 1893..	260 00
Perce wharf.....	E. Bourget.....	Jan. 26, 1909..	90 00
*Peter point.....	J. T. St. Croix.....	Sept. 11, 1909..	540 00
Perroquet island.....	P. Vigneau.....	Sept. 19, 1892..	700 00
Portneuf.....	E. Tremblay.....	May 16, 1903..	440 00
Portneuf range.....	P. Poitras.....	Oct. 24, 1906..	180 00
Poste St. Martin, front.....	I. D. A. Pilote.....	April 22, 1907..	120 00
Poste St. Martin, back.....	F. Gauthier.....	April 22, 1907..	120 00
Quebec harbour lights.....	Quebec Harbour Comm'rs.		60 00
Cape Ray.....	E. H. Rennie.....	Oct. 19, 1884..	1, 120 00
Red Islet.....	P. T. Fraser.....	April 12, 1890..	730 00
Red Islet lightship.....	J. Irvine.....	Mar. 2, 1900..	3, 000 00
Rich point.....	N. Breton.....	May 16, 1896..	680 00
Rimouski wharf.....	U. Lavoie.....	Oct. 24, 1906..	100 00
Riviere du Loup.....	F. E. Gilbert.....	Sept. 22, 1902..	120 00
Riviere du Moulin (back).....	Mrs. L. Goudreault.....	May 9, 1905..	120 00
Riviere du Moulin (front).....	G. Tremblay.....	Sept. 19, 1889..	120 00
Riviere Caribou (front).....	J. Savard.....	July 1, 1892..	120 00
Riviere à la Pipe.....	A. Morin.....	Oct. 3, 1901..	140 00
River Valin (back).....	G. Lavoie.....	June 7, 1909..	90 00
River Valin (front).....	M. Lavoie.....	June 7, 1909..	90 00
Roberval range.....	Roberval Electric Co.....	June 21, 1898..	100 00
Cape Rosier.....	E. Costin.....	Nov. 4, 1890..	1, 180 00
Salmon, Cape.....	L. Bouchard.....	May 16, 1896..	980 00
*Sandy Beach point.....	J. N. Ascah.....	Dec. 2, 1911..	520 00
Savards light.....	D. Savard.....		180 00
Seven islands.....	H. Demeules.....	July 13, 1909..	1, 080 00
Stone pillar and Algernon rock.....	E. Francoeur.....	Feb. 15, 1912..	780 00
St. Alphonse wharf light.....	P. Tremblay.....	June 19, 1895..	100 00
Ste. Anne de Beaupre (back).....	A. Poulin.....	June 8, 1908..	120 00
Ste. Anne de Beaupre (front).....	C. Dufour.....	June 8th, 1908..	120 00
Ste. Anne des monts.....	F. Henley.....	Dec. 22, 1911..	140 00
Ste. Anne des monts wharf light.....	E. Lefrancois.....	Jan. 27, 1911..	80 00
St. Antoine ranges (front).....	L. Frechette.....	Aug. 11, 1908..	140 00
St. Antoine ranges (back).....	G. Demers.....	Dec. 7, 1911..	140 00
St. Charles de caplan wharf light.....	U. Dion.....	May 20, 1911..	80 00
Point St. Charles light.....	A. Messier.....	Sept. 30, 1910..	80 00
Ste. Croix light.....	W. A. Thurber.....	June 28, 1907..	260 00
Ste. Croix (front).....	F. Croteau.....	Mar. 28, 1901..	120 00
Ste. Croix (back).....	Mrs. D. Racette.....	Dec. 1890..	120 00
Ste. Famille (back).....	A. Paquet.....	May 17, 1908..	120 00
Ste. Famille (front).....	A. Poulin.....	April 26, 1898..	135 00
St. Francois (front).....	Jos. Lepage, Jr.....	July 8, 1909..	130 00
St. Francois (back).....	L. Marceau.....	Jan. 7, 1884..	140 00
St. Godfrey wharf light.....	J. Grenier.....	May 3, 1909..	90 00
St. Irénée wharf light.....	Electric Co.....	1906..	
St. Jean light.....	T. Pouliot.....	June 21, 1909..	
St. Laurent light.....	T. Coulombe.....	Dec. 23, 1911..	320 00
St. Omer wharf light.....	J. E. Landry.....	Nov. 12, 1910..	80 00
St. Thomas de Montmagny.....	E. Nicol.....	April 7, 1910..	125 00
St. Pancras point.....	P. Gravel.....	June 21, 1909..	350 00
St. Petronille light.....	N. Ferland.....	Sept. 3, 1901..	320 00
St. Pierre range (front).....	O. Vezina.....	Oct. 28, 1897..	120 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
*Continued.*QUEBEC AGENCY—*Continued.*

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
St. Pierre range (back).....	J. Roberge.....	May 13, 1908..	120 00
*St. Simeon wharf light.....	H. Savard.....	Oct. 25, 1906..	100 00
Trois Pistoles wharf.....	D. D'Amours.....	Dec. 21, 1911..	120 00
*Upper Traverse.....	A. Fournier.....	April 14, 1900..	980 00

MONTREAL AGENCY.

Aigle, Ile à l' (front).....	F. X. Lapointe.....	May 1, 1903..	180 00
Aigle, Ile à l' (back).....	E. Savarie.....	May 1, 1903..	180 00
Anglais, Pointe aux.....	L. H. Masson.....	Sept. 4, 1897..	320 00
Argenteuil bay range.....	P. Giroux.....	April 13, 1909..	130 00
Ash and Bloody islands.....	J. A. McGee.....	May 26, 1903..	320 00
Bague, Isle à la.....	L. Dubois.....	April 14, 1903..	280 00
Barques, Ile des, range.....	O. Salvail.....	Jan. 24, 1907..	380 00
Barre a Boulard (front).....	N. Daigle.....	May 28, 1904..	320 00
Barre a Boulard (back).....	P. Abel.....	June 23, 1903..	140 00
Batiscan (front).....	A. LaHaie.....	May 26, 1909..	200 00
Batiscan (back).....	J. L. Brunette.....	April 27, 1905..	140 00
Batture St. Antoine traverse.....	A. Colette.....	Nov. 23, 1910..	100 00
Beauharnois range.....	A. Daoust.....	April 14, 1903..	320 00
Becancour (front).....	O. Gingras.....	Mar. 15, 1906..	260 00
Becancour (back).....	A. Tourigny.....	Mar. 15, 1906..	180 00
Becquets, St. Pirere les.....	O. Tousignaut.....	Mar. 7, 1910..	105 00
Bellerive park range.....	C. Roy.....	Jan. 12, 1905..	260 00
Bellevue, Ste. Anne de.....	J. L. Stocker.....	May 20, 1902..	220 00
Black Point.....	J. H. Peters.....	June 1, 1891..	100 00
Bouchard, Ile (front).....	I. Laporte.....	April 21, 1902..	220 00
Bouchard, Ile (back).....	A. Chicoine, Jr.....	June 16, 1903..	160 00
Boucherville range.....	H. Carriere.....	Aug. 26, 1903..	140 00
Cadieux, Pointe a.....	S. Poirier.....	May 4, 1904..	260 00
Cardinal traverse.....	P. Morin.....	Nov. 22, 1910..	100 00
Caron point.....	H. Sauve.....	Feb. 16, 1889..	120 00
Chambly basin range.....	J. de Senneville.....	June 24, 1907..	220 00
Chambly canton range.....	J. Savage.....	July 10, 1907..	220 00
Champlain (front).....	P. L. Carignan.....	Oct. 1, 1892..	140 00
Champlain (back).....	L. Bertrand.....	Sept. 12, 1902..	180 00
Champlain, upper (front).....	O. Massicotte.....	Jan. 30, 1906..	125 00
Champlain, upper (back).....	L. Pothier.....	Jan. 31, 1906..	180 00
Charles, cape (front).....	A. Boisvert.....	July 23, 1901..	140 00
Charles, cape (back).....	A. Baron.....	June 26, 1901..	140 00
Church point traverse (front).....	A. Bouvier.....	Oct. 6, 1910..	50 00
Church point traverse (back).....	F. Messier.....	Oct. 6, 1910..	50 00
Citrouilles, pointe.....	W. Brunelle.....	May 26, 1909..	290 00
Contreccœur course (front).....	J. Arpin.....	April 22, 1904..	140 00
Contreccœur course (back).....	N. Duval.....	April 22, 1904..	180 00
Contreccœur Vercheres (front).....	H. Tetrault.....	Nov. 11, 1904..	220 00
Contreccœur Vercheres (back).....	E. Guyon.....	Nov. 11, 1904..	220 00
Contreccœur traverse (front).....	J. A. Lacroix.....	July 19, 1906..	160 00
Contreccœur traverse (back).....	A. Lacroix.....	July 26, 1904..	180 00
Deslauriers, Ile (front).....	N. Langevin.....	Dec. 18, 1906..	220 00
Deslauriers, Ile (back).....	P. Choquet.....	Mar. 13, 1908..	220 00
Dorval and Point Claire.....	B. Gloude.....	Sept. 7, 1872..	400 00
Gallia bay, upper range.....	E. Cantara.....	May 3, 1907..	350 00
Gallia bay, lower range.....	L. Peloquin.....	May 3, 1907..	350 00
Gentilly (front).....	A. Lebleue.....	April 6, 1907..	320 00
Gentilly (back).....	D. Maillot.....	April 2, 1907..	220 00
Georgeville.....	C. E. Martel.....	May 19, 1905..	100 00
Grace, Ile de (front).....	E. Paul.....	Sept. 7, 1871..	320 00
Grace, Ile de (back).....	L. Letendre.....	Mar. 28, 1906..	180 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

MONTREAL AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Graham (front).....	X. Sicard.....	April 29, 1905..	100 00
Graham (back).....	E. Lavigne.....	Feb. 16, 1911..	80 00
Green shoal.....	A. Laberge.....	May 20, 1902..	260 00
Grenville ranges.....	W. Davison.....	Mar. 29, 1910..	230 00
Grondines (front).....	E. Mayrand.....	June 20, 1904..	260 00
Grondines (back).....	J. Sauvageau.....	July 10, 1906..	180 00
Grondines point (front).....	A. Sauvageau.....	June 20, 1904..	380 00
Grondines point (back).....	E. Houde.....	June 30, 1904..	180 00
Guard pier.....	B. Rodier.....	Sept. 12, 1907..	500 00
Halfway point range, north of.....	J. Lord.....	May 5, 1903..	260 00
Hebert point.....	X. Hebert.....	Sept. 30, 1910..	00 00
Hochelaga range.....	U. Paquette.....	Sept. 1, 1910..	230 00
Jones Island.....	J. Charlebois.....	April 22, 1909..	130 00
Lachine ranges.....	A. Ligotte, Jr.....	April 27, 1910..	275 00
Lacolle range.....	W. G. Whitman.....	Jan. 18, 1904..	220 00
Lac, Pointe du.....	S. Paquin.....	May 2, 1900..	180 00
Langlais pointe.....	A. Langlais.....	July 11, 1888..	220 00
Laperle traverse.....	L. Jussaume.....	Nov. 22, 1910..	100 00
Lavaltrie range.....	J. O. Martineau.....	Jan. 20, 1912..	320 00
Lead Mines.....	W. Wheeler.....	June 1, 1891..	100 00
Longue Point traverse range.....	A. Valiquette.....	Mar. 10, 1910..	190 00
L'Orignal.....	G. Seguin.....	May 8, 1894..	180 00
Lotbinière (front).....	Mrs. L. Beaudet.....	Sept. 3, 1903..	140 00
Lotbinière (back).....	G. Beaudet.....	Jan. 4, 1883..	140 00
Louiseville range.....	O. Plante.....	April 19, 1907..	220 00
McTavish point.....	J. Campbell.....	Nov. 18, 1896..	180 00
Madeleine, Cap, lower range (front).....	M. Hebert.....	May 11, 1888..	140 00
Madeleine, Cap, lower range (back).....	G. Vaillancourt.....	Mar. 12, 1906..	180 00
Madeleine, Cap, upper range (front).....	P. Toupin.....	Aug. 29, 1907..	140 00
Madeleine, Cap, upper range (back).....	E. Beaumier.....	Mar. 12, 1906..	180 00
Madeleine, Cap, village range.....	E. Lacourse.....	Mar. 1, 1906..	260 00
Marcotte traverse.....	F. Marcotte.....	Oct. 18, 1910..	100 00
Moine, Ile du (front).....	E. Provencal.....	Dec. 27, 1906..	180 00
Moine, Ile du (back).....	P. Mongeau.....	Dec. 27, 1906..	220 00
Molson Island.....	Miss E. G. Molson.....	.....	135 00
Nicolet (front).....	D. Heroux.....	Dec. 5, 1906..	320 00
Nicolet (back).....	E. Heroux.....	Dec. 5, 1906..	180 00
Oka.....	G. Lamouche.....	Nov. 3, 1910..	125 00
Oka wharf.....	D. Guindon.....	Nov. 3, 1910..	85 00
Pads, Ile du, range.....	Z. Courschenes.....	Aug. 1, 1907..	380 00
Papineauville range.....	J. Chabot.....	June 17, 1897..	180 00
Perrot, Ile, range.....	A. McNab.....	May 20, 1905..	180 00
Petite Ile course range.....	E. Leblanc.....	Sept. 30, 1910..	100 00
Petite traverse (front).....	L. Caisse.....	April 22, 1904..	140 00
Petite traverse (back).....	O. Caisse.....	Nov. 18, 1910..	150 00
Platon range.....	C. Beaudet.....	Aug. 24, 1904..	220 00
Portneuf range.....	J. Rodrique.....	May 16, 1903..	380 00
Raisin, Ile au.....	L. Boucher.....	April 13, 1898..	380 00
Repentigny (front).....	J. B. Lachapelle.....	Feb. 1, 1861..	140 00
Repentigny (back).....	L. L. River.....	April 28, 1894..	140 00
Richelieu.....	J. Auger.....	July 14, 1908..	220 00
Rigaud.....	O. Mallette.....	April 7, 1910..	190 00
Ronde, Ile, range.....	H. Charland.....	Aug. 1, 1907..	520 00
Ste. Anne lock.....	F. X. Demers.....	May 17, 1907..	140 00
Ste. Anne de Sorel (front).....	F. Lanciault.....	Mar. 26, 1906..	140 00
Ste. Anne de Sorel (back).....	P. Cournoyer.....	Mar. 27, 1906..	180 00
St. Charles point.....	A. Messier.....	Sept. 30, 1910..	100 00
Ste. Emélie (front).....	J. B. Gaudet.....	Jan. 9, 1911..	120 00
Ste. Emélie (back).....	E. Filtreau.....	Mar. 16, 1905..	140 00
St. Francis range.....	F. Manseau.....	Mar. 27, 1900..	380 00
St. Francis river ranges.....	P. Descheneau.....	Mar. 21, 1912..	220 00
St. Jean.....	E. Menard.....	Feb. 15, 1909..	220 00
St. Mark point.....	X. Prefontaine.....	Oct. 5, 1910..	100 00
St. Ouge traverse.....	A. Lariviere.....	Nov. 22, 1910..	100 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

MONTREAL AGENCY—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
St. Ours traverse, ile (front).....	J. B. Laporte.....	Nov. 11, 1904..	220 00
St. Ours traverse, ile (back).....	A. Gaudette.....	Oct. 24, 1908..	170 00
St. Ours Locks traverse.....	N. Auger.....	Nov. 21, 1910..	100 00
St. Peter, Lake (front).....	G. A. Lamirande.....	May 22, 1911..	320 00
St. Peter, Lake (back, down range).....	J. Lefebvre.....	May 11, 1911..	320 00
St. Peter, Lake (back, up range).....	D. Lafleche.....	May 11, 1911..	380 00
St. Placide.....	D. Lefebvre.....	Sept. 9, 1909..	240 00
Ste. Thérèse, upper range.....	S. Reeves.....	Oct. 12, 1970..	380 00
Ste. Thérèse, lower range.....	J. Malo.....	Feb. 1, 1897..	220 00
St. Valentine range.....	A. Martin.....	June 30, 1909..	200 00
Sorel range.....	Richelieu & Ontario Navigation Co.....	Sept. 6, 1854..	85 00
Tetraultville.....	A. David.....	Nov. 18, 1911..	180 00
Three Rivers range.....	H. Roy.....	July 28, 1911..	180 00
Varennes.....	A. Geoffrin.....	May 1, 1903..	120 00
Vercheres traverse (front).....	F. X. Chicoine.....	April 21, 1902..	140 00
Vercheres traverse (back).....	P. Charbonneau.....	April 21, 1902..	120 00
Vercheres village (front).....	J. Guyon.....	April 21, 1902..	140 00
Vercheres village (back).....	F. Bousquet.....	April 21, 1902..	120 00
Wadleigh point.....	J. A. Patterson.....	June 1, 1891..	100 00
Way channel and besserer crossing.....	M. Beauchamp.....	Nov. 29, 1906..	230 00
Windmill Point traverse.....	R. Dansereau.....	Nov. 21, 1910..	100 00
Witch shoal.....	D. E. Peters.....	June 1, 1891..	260 00

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Allumette island.....	J. Cox.....	June 12, 1887..	180 00
Allumette lake.....	J. T. Manders.....	Sept. 17, 1907..	180 00
Arnprior island.....	W. Kilroy.....	Sept. 27, 1905..	260 00
Arthur, Port.....	J. C. Banks.....	Dec. 11, 1908..	365 00
Aylmer island.....	F. Boucher.....	Nov. 17, 1882..	260 00
Barriefield Common.....	W. Murray.....	May 17, 1900..	260 00
Baril, Point au.....	O. Hanson.....	July 10, 1907..	440 00
Baskins wharf.....	S. Sullivan.....	Dec. 22, 1896..	220 00
* Battle island.....	C. S. McKay.....	Aug. 27, 1877..	680 00
Baymouth, South.....	J. A. Ritchie.....	Sept. 10, 1903..	220 00
Belleville.....	J. C. Weir.....	Apr. 4, 1901..	320 00
Bishops bay.....	I. Lakins.....	May 24, 1912..	230 00
Blind river.....	W. H. McGauley.....	Jan. 5, 1909..	60 00
Blind river, Eddy Wharf.....	Eddy Bros.....	Oct. 27, 1905..	60 00
Bois Blanc.....	C. R. Hackett.....	Apr. 27, 1910..	540 00
Boyd island.....	Mrs. Eliz. Martin.....	Jan. 6, 1905..	380 00
Brebeuf range.....	W. J. Baxter.....	Nov. 23, 1885..	440 00
Brighton.....	H. V. Simpson.....	May 11, 1888..	540 00
Bronte.....	C. Osborne.....	Dec. 7, 1906..	260 00
Bruce Mines.....	W. Fleming.....	Mar. 31, 1909..	90 00
Buckom point.....	G. Ouellette.....	Feb. 23, 1884..	260 00
Burlington bay.....	T. Lundy.....	May 2, 1905..	755 00
* Burwell, Port.....	J. Sutherland.....	June 18, 1894..	520 00
Burwell, Port, Inner Range.....	J. Sutherland.....	Oct. 27, 1909..	90 00
* Byng Inlet.....	L. Lamondin.....	July 30, 1901..	520 00
Cabot Head.....	C. Webster.....	May 10, 1898..	1,180 00
Campbell Island.....	R. Wilson.....	July 6, 1905..	260 00
Caribou Island.....	A. Boucher.....	May 3, 1907..	1,440 00
Ceebe Lake.....	J. Schade.....	Aug. 31, 1906..	320 00
Centre Bro. island.....	D. Wemp.....	Jan. 9, 1901..	320 00
Chantry island.....	M. McIver.....	Feb. 16, 1907..	680 00
Chenal Ecarte.....	P. Willis.....	Dec. 3, 1908..	160 00
Cherry island.....	I. S. Johnson.....	Nov. 5, 1883..	380 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

ONTARIO—Continued.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
* Christian island.....	A. Collins.....	Mar. 25, 1891..	600 00
* Clapperton island.....	H. F. Baker.....	Dec. 2, 1895..	440 00
Clark, point.....	M. McDonald.....	Jan. 8, 1897..	600 00
Cobourg.....	R. Gordon.....	Apr. 7, 1911..	50 00
Cobourg fog alarm.....	J. Lavis.....	July 5, 1910..	400 00
Colborne, Port.....	H. Clark, Jr.....	May 30, 1904..	1,180 00
Colborne, Port, East.....	J. Madden.....	May 22, 1911..	320 00
* Colchester Reef.....	F. Malott.....	Mar. 31, 1911..	880 00
Cole shoal.....	R. P. Boyd.....	Apr. 9, 1884..	380 00
* Collingwood.....	J. Wilde.....	Feb. 24, 1912..	440 00
Coppermine point.....	F. E. Roussain.....	Oct. 10, 1910..	190 00
* Corbeil point.....	J. Davieux.....	May 27, 1890..	440 00
Corunna.....	W. J. Scott.....	Apr. 23, 1901..	220 00
Coteau Landing.....	A. Gauthier.....	May 26, 1910..	190 00
Coulouge, lake.....	E. Bertrand.....	July 16, 1908..	180 00
Cove island.....	K. McLeod.....	June 19, 1903..	1,180 00
Credit, Port.....	J. Miller.....	Dec. 16, 1897..	260 00
Croker, cape.....	W. Chapman.....	Apr. 27, 1910..	1,030 00
Current, Little.....	D. Boyter.....	Apr. 22, 1902..	440 00
Dalhousie, Port.....	G. Houston.....	May 3, 1912..	440 00
Darlington.....	Port Darlington Co.....	.....1886..	100 00
Deep river islet.....	J. Beauchamp.....	Mar. 3, 1908..	180 00
Deseronto.....	Rathbun Lumber Co.....	Oct. 14, 1884..	200 00
Dover, Port.....	S. L. Butler.....	July 15, 1897..	440 00
Duck island, Great.....	J. Purvis.....	Mar. 9, 1898..	1,180 00
Edward, point.....	L. Knauff.....	May 23, 1908..	260 00
Elgin, Port.....	R. M. Lowry.....	Mar. 14, 1896..	180 00
False Ducks.....	D. Dulmage.....	May 19, 1903..	980 00
Ferris island.....	J. Morriseau.....	Mar. 24, 1898..	320 00
Flowerpot island.....	B. Smith.....	Apr. 27, 1910..	640 00
Fort William, Ottawa river.....	C. L. McCool.....	May 17, 1911..	105 00
Fox Island.....	L. Prosser.....	Apr. 18, 1910..	275 00
Frenchman bay.....	W. O'Brien.....	Apr. 14, 1904..	220 00
* French river, and Bustard Rocks.....	Mrs. E. B. Borron.....	Jan. 30, 1903..	680 00
* Gananoque Narrows.....			
Jackstraw shoal.....			
Lindoe island.....			
Spectacle shoal.....	Mrs. Manly Cross.....	Jan. 2, 1908..	600 00
Red Horse rock.....			
Burnt island.....			
* Gargantua.....	L. Miron.....	Oct. 26, 1889..	600 00
Giants Tomb.....	A. H. Griffith.....	Sept. 17, 1898..	380 00
Gibraltar point.....	P. J. McSherry.....	May 2, 1905..	440 00
Gimli.....	E. G. Tomsen.....	Jan. 21, 1910..	85 00
Goderich.....	W. Robinson.....	Apr. 12, 1911..	520 00
Goderich beacon.....	W. Robinson.....	Apr. 12, 1911..	50 00
* Gore bay.....	A. Matheson.....	July 10, 1903..	440 00
Gravenhurst Narrows.....	I. Barnes.....	Mar. 20, 1906..	180 00
Grenadier island.....	D. Root.....	Nov. 30, 1908..	305 00
* Griffith island.....	W. S. Boyd.....	May 14, 1889..	600 00
Hamilton island and Glengarry Point.....	R. Casgrain.....	Apr. 6, 1906..	380 00
Hope island.....	T. Marchildon (lightkeeper)	Feb. 24, 1912..	555 00
	P. LeBlanc (engineer).....	May 12, 1909..	625 00
Jackfish bay.....	B. Almos.....	Oct. 1, 1907..	95 00
Kagawong.....	W. M. Boyd.....	Apr. 13, 1893..	120 00
Kaministiquia.....	J. Armstrong.....	Apr. 28, 1894..	380 00
* Killarney, E. and W.....	F. Roque.....	Feb. 28, 1905..	440 00
Kincardine.....	T. McGaw, Jr.....	June 13, 1899..	600 00
Kingsville.....	W. H. Black.....	July 27, 1902..	260 00
* Knapp point.....	J. J. Brophy.....	May 9, 1905..	260 00
Knight point.....	W. Shannon.....	Sept. 27, 1866..	600 00
* Lamb island.....	A. Alexander.....	Apr. 26, 1897..	680 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
*Continued.*ONTARIO—*Continued.*

Name	Station.	Name of Lightkeeper.	Appointed.	Salary.
				\$ cts.
* Lancaster pier and bar.....		J. J. Munroe.....	June 8, 1892..	520 00
Leamington.....		F. H. C. Conover.....	Apr. 24, 1883..	260 00
Lime, Kiln Crossing.....		S. Pettypiece.....	May 11, 1888..	350 00
Lion's Head.....		C. Knapp.....	Oct. 28, 1903..	100 00
* Lonely island.....		J. Haitse.....	May 11, 1885..	880 00
Long point, E. E.....		S. B. Cook.....	June 9, 1897..	1,180 00
Long point, W. E.....		F. E. Mason.....	June 3, 1901..	600 00
Lower Narrows.....		J. B. LeBlanc.....	Jan. 4, 1904..	180 00
Lyal island.....		J. McKay.....	Oct. 27, 1884..	680 00
McKie point.....		D. Daoust.....	Sept. 21, 1893..	260 00
McKay island.....		J. Harvey.....	July 10, 1907..	380 00
McQuestion point.....		Mrs. E. McLeod.....	Feb. 22, 1904..	180 00
* Maitland, Port.....		Mrs. J. Grant.....	June 19, 1907..	440 00
Manitowaning.....		J. Gourley, jr.....	July 3, 1900..	220 00
* Meaford.....		S. Dutcher.....	May 7, 1877..	260 00
Michipicoten harbour.....		W. T. Richardson.....	Sept. 27, 1900..	380 00
Michipicoten and Agate island.....		C. Davieux.....	June 29, 1910..	540 00
Middle island.....		J. Lidwell.....	May 16, 1911..	440 00
Midland, point.....		F. Somers.....	May 11, 1911..	260 00
Mississagi island.....		L. D. McDonald.....	May 16, 1896..	600 00
Mississagi strait.....		J. H. Ball.....	May 7, 1900..	1,180 00
Mitchell bay.....		S. MacDonald.....	Feb. 22, 1912..	140 00
Mohawk island.....		R. O. Smithers.....	Mar. 3, 1896..	600 00
Morris island.....		W. E. Rowan.....	Feb. 16, 1910..	190 00
* Narrow island.....		A. B. Boyter.....	Jan. 3, 1898..	380 00
Niagara.....		R. J. Allen (lightkeeper).....	July 19, 1907..	260 00
		J. W. McMillan (engineer).....	Nov. 30, 1910..	540 00
Nigger island.....		C. Jeffrey.....	Apr. 28, 1894..	320 00
Ninemile point.....		S. Veech.....	Mar. 7, 1894..	980 00
* Nottawasaga island.....		J. McNab.....	Feb. 24, 1912..	600 00
Oakville.....		M. Felan.....	Apr. 28, 1894..	260 00
Onderdonk point.....		E. Bryant.....	Mar. 6, 1911..	140 00
* Otter island.....		R. McMenemy.....	Nov. 17, 1903..	600 00
Owen Sound.....		A. McLean.....	Dec. 23, 1897..	320 00
		S. Bottom.....	Nov. 12, 1910..	655 00
Pelee passage.....		J. Ouellette (1st assistant).....	Oct. 6, 1911..	460 00
		T. S. Schultheiss (2nd ass't).....	May 11, 1911..	310 00
Penetanguishene and Whisky island.....		C. Columbus.....	Mar. 18, 1893..	440 00
* Peninsula harbour.....		J. Blondin.....	Oct. 14, 1910..	620 00
Peter, point.....		G. J. Scott.....	June 6, 1901..	980 00
Peter Rock.....		J. Roddick.....	Sept. 7, 1907..	680 00
* Pie island.....		X. Frank (temp.).....	Oct. 16, 1911..	380 00
* Pigeon island.....		J. H. Davis.....	May 16, 1896..	620 00
Pins, Point aux.....		A. McKinnon.....	May 16, 1904..	520 00
Pleasant, point.....		F. Connors.....	Oct. 13, 1898..	440 00
Porphyry, point.....		J. Bousquet.....	Aug. 11, 1908..	980 00
Presqu'Isle.....		H. E. Smith (lightkeeper).....	May 22, 1911..	380 00
		W. B. Ainsworth (engineer).....	Oct. 12, 1907..	600 00
* Providence bay.....		J. B. Sinclair.....	Sept. 4, 1906..	380 00
Rains wharf.....		W. W. Rains.....	Aug. —, 1892..	140 00
Rainy river.....		P. O'Connor.....	July 27, 1904..	380 00
Red river.....		W. Hughes.....	Feb. 12, 1892..	520 00
* Red Rock and Snug harbour.....		A. Brown.....	June 2, 1909..	640 00
Richards landing.....		R. Armstrong.....	—, 1907..	100 00
Robert, cape.....		N. Matheson.....	Oct. 7, 1896..	440 00
* Rondeau.....		W. R. Fellows.....	Dec. 18, 1888..	520 00
Rosseau.....		J. G. Dixon.....	July 21, 1890..	180 00
Sailors Encampment.....		A. M. Rains.....	Aug. —, 1892..	180 00
* St. Anicet.....		D. McKillop.....	June 8, 1892..	380 00
Sand point.....		P. McLean.....	May 1, 1909..	90 00
Saugeen.....		A. McAulay.....	Aug. 30, 1909..	200 00
* Scotch Bonnet.....		C. R. Spencer.....	Apr. 27, 1903..	520 00

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STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Continued.

ONTARIO—Concluded.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts.
Shaganash.....	F. S. Oatt.....	Dec. 23, 1911..	320 00
Sheguiandah.....	W. Stevens.....	Jan. 11, 1909..	160 00
* Shoal island.....	J. L. McCluskie.....	Sept. 11, 1909..	350 00
Silver islet.....	J. Cross.....	May 18, 1905..	180 00
* Sister Rock, west.....	J. Thibault.....	Dec. 6, 1905..	520 00
Slate islands.....	A. B. Sutherland.....	July 21, 1908..	680 00
* Snake island.....	C. V. Suds.....	Mar. 16, 1912..	260 00
Southampton.....	J. Brown.....	June 29, 1904..	260 00
South bay point.....	M. Vorce.....	Nov. 21, 1902..	320 00
South East bay.....	T. Darling.....	Jan. 31, 1891..	140 00
South river.....	F. Baechler.....	July 2, 1903..	180 00
Squaw island.....	N. McDougal.....	Apr. 25, 1901..	320 00
Stag island.....	T. M. Cowan.....	Nov. 3, 1903..	260 00
Stanley, Port.....	J. L. Oliver.....	Jan. 8, 1908..	440 00
Stanley, Port, beacon.....	J. L. Oliver.....	Aug. 6, 1909..	50 00
Stokes bay.....	A. Smith.....	May 14, 1908..	320 00
* Strawberry island.....	W. McKenzie.....	May 4, 1893..	440 00
Stripling point.....	D. Humes.....	Aug. 27, 1902..	320 00
Sulphur island.....	W. Birch.....	Aug. 1, 1910..	395 00
Supple point.....	C. J. Kelly.....	Oct. 6, 1909..	160 00
Telegraph island.....	G. A. Rowe.....	Oct. 25, 1895..	320 00
Thames river.....	H. A. Cartier.....	Oct. 19, 1884..	520 00
* Thessalon.....	J. Harvey.....	Nov. 23, 1897..	440 00
Thornbury.....	R. Lowe.....	Apr. 12, 1887..	140 00
Thunder cape.....	W. Craig.....	May 17, 1892..	1,180 00
* Tobermory.....	A. Currie.....	Oct. 12, 1903..	320 00
Tomahawk island.....	T. Sweeney.....	Sept. 19, 1902..	320 00
Toronto, east pier.....	G. McKelvie.....	Aug. 1, 1907..	1,180 00
Trenton.....	C. W. Spicer.....	May 5, 1909..	200 00
Victoria harbour.....	C. Berzie.....	Oct. 15, 1910..	190 00
* Victoria island.....	G. Cosgrove.....	Nov. 14, 1889..	520 00
Wabi river.....	D. McKelvie.....	Apr. 10, 1912..	260 00
Warren Landing.....	H. McDonald.....	Sept. 14, 1907..	400 00
Welcome islands.....	A. Perras.....	May 10, 1896..	980 00
Western islands.....	T. J. Richardson.....	June 27, 1901..	1,180 00
Whitby.....	R. Goldring.....	Dec. 2, 1911..	180 00
Warton.....	W. Gilbert.....	Sept. 13, 1907..	100 00
Wicked point.....	J. Cavanagh.....	Mar. 21, 1911..	395 00
Wilson channel.....	R. Bamford.....	Jan. 15, 1912..	380 00
Wolfe island.....	W. Gillespie.....	Mar. 16, 1885..	320 00

MANITOBA.

* Black Bear island.....	D. Matheson.....	June 22, 1899..	380 00
* Cox Reef.....	A. A. T. McKay.....	Mar. 31, 1911..	480 00
* George island.....	J. Thumser.....	Mar. 31, 1911..	440 00
Gimli.....	E. G. Thomson.....	Jan. 21, 1910..	85 00
* Gull harbour.....	T. Fjeldsted.....	May 6, 1904..	180 00
Red river range.....	Wm. Hughes.....	Feb. 12, 1892..	520 00
Warren Landing ranges.....	H. McDonald.....	Sept. 14, 1907..	400 00

* For blowing hand fog horn.

STATEMENT of light stations and names of lightkeepers, &c., in the Dominion.—
Concluded.

BRITISH COLUMBIA.

Name of Station.	Name of Lightkeeper.	Appointed.	Salary.
			\$ cts
Active pass.....	H. Georgeson.....	July 21, 1884..	1,170 00
Alberni.....	H. Miller.....	Dec. 16, 1911..	180 00
Amphitrite point.....	G. W. Grant.....	Feb. 28, 1907..	390 00
Atkinson point.....	T. D. Grafton.....	Apr. 9, 1910..	1,357 50
Ballenas islands.....	T. C. L. Hayllar.....	Feb. 15, 1912..	1,020 00
Bare point.....	P. R. Stevinson.....	Oct. 14, 1910..	285 00
Beale, cape.....	J. S. Richardson.....	Oct. 6, 1911..	1,470 00
*Berens Island.....	S. G. Harrison.....	Nov. 4, 1897..	480 00
Bernie island.....	G. Rudge.....	June 30, 1906..	390 00
*Brocton point.....	W. D. Jones.....	Aug. 20, 1890..	480 00
Carmanah.....	W. P. Daykin.....	Nov. 4, 1890..	1,770 00
Crofton.....	R. Allan.....	May 31, 1907..	270 00
Denman island.....	H. Piercy.....	May 16, 1911..	480 00
Discovery island.....	M. A. Croft.....	Apr. 1, 1902..	1,170 00
*Dryad point.....	C. Carpenter.....	Dec. 4, 1899..	480 00
Egg island.....	J. Forsyth.....	Sept. 26, 1910..	1,620 00
Entrance island.....	J. Lewis (temp).....	Sept. 1, 1911..	1,320 00
Estevan point.....	J. P. Jensen.....	May 27, 1910..	1,650 00
Fiddle reef.....	D. H. McNeill.....	Mar. 21, 1905..	570 00
First narrows.....	A. Rood.....	Aug. 1, 1911..	400 00
Fisgard.....	J. Gosse.....	Oct. 13, 1909..	525 00
Fraser river, North arm range.....	J. Quinn.....	Apr. 27, 1909..	360 00
Fraser river and Garry point.....	A. A. Parker.....	Oct. 14, 1907..	570 00
Fraser river lightship.....	M. O'Brien.....	Sept. 26, 1906..	1,470 00
Gallows point for bell.....	Western Fuel Co.....	June 8, 1906..	120 00
Green island.....	A. Dingwell.....	Feb. 11, 1911..	1,320 00
Helen point fog bell.....	D. Tom.....	Mar. 2, 1910..	120 00
Ivory island.....	F. Renter.....	May 2, 1905..	1,170 00
Kootenay Landing.....	Canadian Pacific Ry. Co.....	Apr. 10, 1909..	120 00
Lardo.....	Canadian Pacific Ry. Co.....	Mar. 19, 1910..	120 00
Lawyer islands.....	F. W. B. Elsterman.....	Oct. 26, 1905..	780 00
Lennard island.....	R. Pollock.....	July 21, 1908..	2,000 00
Lookout island.....	A. Ellis.....	Dec. 1, 1906..	390 00
*Lucy island.....	J. S. O. Ouellette.....	July 6, 1910..	690 00
Merry island.....	M. T. Franklin.....	Jan. 8, 1904..	570 00
Mudge, cape.....	J. Davidson.....	June 27, 1898..	570 00
Nanaimo harbour.....	H. B. Shaw.....	June 4, 1907..	330 00
Nootka.....	H. T. W. Smith.....	Feb. 11, 1911..	480 00
Pachena.....	W. R. Pillar.....	Nov. 6, 1908..	2,000 00
Patey rock.....	H. Moore.....	Jan. 27, 1911..	225 00
Pilot bay.....	E. Montreuil.....	Dec. 10, 1907..	570 00
Pine island.....	A. B. Gurney.....	July 13, 1908..	1,770 00
*Pointer island.....	J. Codville.....	Oct. 24, 1900..	570 00
Porlier pass range.....	F. F. Allison.....	Apr. 14, 1903..	570 00
*Portlock point.....	G. A. Watson.....	Apr. 12, 1911..	480 00
Proctor.....	J. W. Gallup.....	Apr. 20, 1900..	600 00
*Prospect point.....	J. Grove.....	July 7, 1898..	480 00
*Pulteney point.....	A. McKela.....	Mar. 14, 1906..	570 00
Quatsino.....	N. C. Nelson.....	Dec. 6, 1910..	502 50
Race rocks.....	F. M. Eastwood.....	Jan. 31, 1891..	1,770 00
Saturna island.....	J. Georgeson.....	Oct. 26, 1889..	900 00
*Scarlett point.....	W. Hunt.....	Sept. 24, 1908..	547 50
Sisters.....	W. Buss.....	Sept. 27, 1911..	1,020 00
Swale rock.....	G. Strickland.....	Nov. 7, 1907..	270 00
Trial islands.....	H. S. O'Kell.....	Oct. 24, 1906..	1,470 00
Triangle island.....	J. W. Davies.....	Oct. 14, 1910..	1,357 50
Whiffen spit.....	A. Godtell.....	Apr. 12, 1907..	210 00
Victoria harbour beacons.....	T. Sparks.....	Jan. 1, 1903..	300 00
Yellow island.....	J. Doney.....	Feb. 6, 1906..	1,020 00

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(INCLOSURE No. 3.)

Statement showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.

UNDER THE NOVA SCOTIA AGENCY—DISTRICT No. 1.

Station No.	Name of Station.	Description of Buoy.
24	Pubnico.....	Gas and whistling.
27	Cape Sable, Southwest Ledge.....	"
29	Brazil Rock.....	"
32	Shelburne.....	"
35	Lockeport.....	"
37	Little hope.....	"
39	Liverpool.....	"
40	Liverpool fairway.....	Gas and bell.
45	Lahave.....	"
48	Lunenburg.....	Gas and whistling.
49	Lunenburg, east point ledge.....	Gas and bell.
54	North east shoal.....	Gas and whistling.
60	Sambro.....	"
61	Outer Automatic, Halifax harbour.....	"
62	Inner Automatic, Halifax harbour.....	"
63	Neverfail, Halifax harbour.....	Gas.
65	Thrumcap.....	Gas and bell.
67	Middle Ground, Halifax harbour.....	Gas.
68	Leopard shoal.....	"
70	Egg island.....	Gas and whistling.
72	Sheet harbour.....	"
76	Liscomb.....	"
80	Isaac harbour.....	"
84	Whitehead.....	"
86	Canso or Grime shoal.....	"
90	Cerberus rock.....	"
94	Petitedegrat.....	Gas and bell.
100	Guion island.....	Gas and whistling.
102	Louisburg.....	"
108	Flat point.....	"
109	South-east bar, Sidney.....	Gas.
117	Seal reefs.....	"
130	Skinner reef.....	"

UNDER THE NEW BRUNSWICK AGENCY—DISTRICT No. 2.

4-S.	Blonde rock.....	Gas and whistling.
6-S.	South-west fairway, Yarmouth.....	"
8-S.	Cape pourchu.....	"
10-S.	Hen-and-chickens, Yarmouth.....	Gas and Bell...
12-S.	South West Ledge, Brier-island.....	Gas and whistling.
14-S.	North west ledge, Brier-island.....	"
16-S.	Avon river.....	Gas.
3	Old proprietor.....	Gas and whistling.
5	North Wolves.....	"
7	Lepreau.....	"
9	Black point.....	"
18	Foul ground, St. John Harbour.....	Gas.
20	Quaco ledge.....	Gas and whistling.
23	Maquacha spit, Restigouche river.....	Gas.
31	Scaumenac, Restigouche river.....	"
32	Point Lanim, Restigouche river.....	"
34	Garde pointe, Restigouche river.....	"
36	Oak point, Restigouche river.....	"
38	Traverse, Restigouche river.....	"
40	Busteed, Restigouche river.....	"
42	Horseshoe bar east, Miramichi.....	"
44	Horseshoe bar west, Miramichi river.....	"
46	Caraquet harbour, east.....	"
47	Caraquet harbour, west.....	"

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STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.—*Continued.*

UNDER THE PRINCE EDWARD ISLAND AGENCY—DISTRICT No. 3.

Station No.	Name of Station.	Description of Buoy.
1	Indian Rocks.....	Gas and whistling.
2	Point Prim.....	"
3	Fitzroy rock.....	"
4	West point.....	"
5	Miscouche shoal.....	"
6	Zephyr rock, Shediac bay, N.B.	Gas.

UNDER THE QUEBEC AGENCY—DISTRICT No. 4.

21-B.	Matane.....	Gas and bell.
27-B.	Father point.....	Gas.
29-B.	Rimouski road.....	"
38-B.	Barrett ledge.....	Gas and Bell...
51-B.	Pilgrim shoal.....	"
56-B.	Traverse, middle ground.....	Gas.
58-B.	South Traverse middle ground	"
59-B.	Lower Traverse.....	"
60-B.	Upper Traverse.....	"
64-B.	Channel patch.....	Gas and bell.
65-B.	Port Joli.....	Gas.
66-B.	Goose island reef.....	"
67-B.	Beaujeau bank, northeast extremity	Gas and bell.
69-B.	Beaujeau, west end	"
70-B.	Beaujeau bank, west end.....	"
77-B.	St. Thomas.....	Gas.
78-B.	St. Thomas.....	"
80-B.	Grosse isle.....	"
84-B.	Empress shoal.....	"
86-B.	Madame island reef.....	"
87-B.	Beaumont reef.....	"
89-B.	Point Levis.....	"
96-B.	Lark reef, south end.....	"
102-B.	Morin shoal.....	"
106-B.	Grande pointe.....	"
110-B.	Eastern narrows, north traverse	"
10-Q.	Fly bank.....	"
15-Q.	Point nicholas.....	"
24-Q.	Pointe aux trembles.....	"
28-Q.	Pointe St. Antoine.....	"
34-Q.	Ste. Croix.....	"
36-Q.	Ste. Croix bar.....	"
44-Q.	Cap Sante.....	"
49-Q.	Pointe Platon.....	"

MONTREAL DIVISION—DISTRICT No. 5.

52-Q.	Portneuf.....	Gas.
68-Q.	Batture Simon.....	"
73-Q.	Batture du chene.....	"
75-Q.	Batture à Cadioux.....	"
78-Q.	Cape Charles.....	"
90-Q.	Cap à la Roche curve	"
92-Q.	Cap à la Roche.....	"
97-Q.	Upper Cap à la roche.....	"
105-Q.	Cap Levrard.....	"
110-Q.	Cap Levrard.....	"
115-Q.	Battiscan course.....	"
119-Q.	Batture St. Pierre.....	"
123-Q.	Battiscan anchorage.....	"
129-Q.	Batture Perron.....	"
2-C.	Pointe Citrouille.....	"
15-C.	Poulier Carpentier.....	"
20-C.	Ile Bigot.....	"
23-C.	Becancour, lower traverse.....	"
30-C.	Becancour Bend.....	"
39-C.	Becancour, upper traverse.....	"
43-C.	Cap Madeleine.....	"
55-C.	Ile aux cochons.....	"

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STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.—*Continued.*

UNDER THE QUEBEC AGENCY DISTRICT No. 4—*Continued.*

Station No.	Name of Station.	Description of Buoy.
59-C.	Three Rivers shoal.....	Gas.
4-L.	Poulier Laforce.....	"
9-L.	English bank.....	"
13-L.	Curve No. 3.....	"
17-L.	" 3.....	"
21-L.	" 3.....	"
22-L.	" 3.....	"
25-L.	" 3.....	"
35-L.	Pointe du Lac course.....	"
47-L.	".....	"
57-L.	Yamachiche bend.....	"
58-L.	".....	"
67-L.	Curve No. 2 to White Buoy.....	"
79-L.	".....	"
85-L.	".....	"
91-L.	Curve No. 1 to Curve No. 2.....	"
97-L.	" 2.....	"
100-L.	" 2.....	"
103-L.	" 2.....	"
111-L.	Ile aux Raisins.....	"
123-L.	Pointe aux soldats.....	"
136-L.	Ile de Grace.....	"
146-L.	Nepigon shoal.....	"
1-M.	Ile aux Foins.....	"
5-M.	St. Ours traverse.....	"
16-M.	Bellmouth curve.....	"
20-M.	".....	"
24-M.	".....	"
31-M.	Contrecoeur bend.....	"
45-M.	Contrecoeur junction.....	"
82-M.	Plum Island.....	"
89-M.	Verchères.....	"
103-M.	Poulier des Trois Bouées.....	"
117-M.	Cap St. Michel.....	"
124-M.	Ile des Lauriers.....	"
129-M.	Varennas curve.....	"
133-M.	Varennas curve.....	"
141-M.	".....	"
149-M.	Pointe aux Trembles bend.....	"
157-M.	Pointe aux Trembles curve.....	"
167-M.	".....	"
174-M.	Longue pointe.....	"
177-M.	Poulier à Gagnon.....	"
181-M.	Longueuil.....	"
191-M.	".....	"
193-M.	".....	"
194-M.	Maisonneuve.....	"
195-M.	Ile Ronde.....	"
196-M.	Longueuil.....	"
201-M.	Montreal harbour.....	"

UNDER THE PRESCOTT AGENCY—DISTRICT No. 6.

16-S.	Four-fifth mile above Lachine.....	Gas.
38-S.	Lachine Cut, upper entrance.....	"
48-S.	East of Lightship No. 2.....	"
53-S.	Off Browns point.....	"
76-S.	Between Light No. 2 and Light No. 3.....	"
86-S.	Between top light and ile Perrot.....	"
98-S.	Windmill point.....	"
100-S.	Entrance to Soulanges canal, east.....	"
102-S.	".....	"
104-S.	Soulanges Canal, East.....	"
22-F.	Port Lewis.....	"
25-F.	Grosse pointe.....	"

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STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.—*Continued.*

UNDER THE PRESCOTT AGENCY—DISTRICT No. 6—*Continued.*

Station No.	Name of Station.	Description of Buoy.
30-F.	Soulanges canal, entrance.....	"
36-F.	Coteau Landing.....	"
43-F.	West end of middle ground.....	"
48-F.	Point Mouille flats.....	"
64-F.	Lancaster.....	"
68-F.	Island bank.....	"
69-F.	East Lancaster bar.....	"
76-F.	Lancaster bar.....	"
78-F.	Squaw island.....	"
83-F.	Renshaw island.....	"
84-F.	Clarks island.....	"
87-F.	Grass island.....	"
96-F.	St. Regis Dyke, west end.....	"
6-U.	Delaney shoal.....	"
8-U.	Archibald shoal.....	"
40-U.	Farran point.....	"
54-U.	Prunner shoal.....	"
72-U.	Jackass shoal.....	"
127-U.	Dixon island.....	"
128-U.	Upper entrance, Iroquois sanal.....	"
2-T.	Brockville narrows.....	"
4-T.	Hillcrest.....	"
6-T.	Cole Shoal, middle ground.....	"
8-T.	Fiddlers Elbow.....	"
12-T.	Gananogue narrows.....	"
38-T.	Wolfe Island.....	"
46-T.	Cold bath shoal.....	"
61-T.	Penitentiary shoal.....	"
69-T.	West end of middle ground, between Snake island and seven acre shoal.....	"
102-T.	Northport shoal.....	"
106-T.	Minnie Blakeley shoal.....	"
110-T.	Trenton.....	"

ONTARIO DIVISION—LAKE ONTARIO—DISTRICT No. 7.

1	Niagara.....	Gas and bell.
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LAKE ERIE—DISTRICT No. 8.

6	Grub reef.....	Gas.
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DETROIT RIVER—DISTRICT No. 9.

13-D.	Bar Point channel.....	Gas.
14-D.	".....	"
23-D.	".....	"
24-D.	".....	"
32-D.	".....	"
38-D.	Hackett reach.....	"
67-D.	Lime Kiln crossing.....	"
68-D.	".....	"
73-D.	".....	"
74-D.	".....	"
79-D.	Ballard reef channel.....	"
80-D.	".....	"
81-D.	".....	"
82-D.	".....	"
83-D.	".....	"
84-D.	".....	"

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STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.—*Continued.*

THAMES RIVER DISTRICT No. 11.

Station No.	Name of Station.	Description of Buoy.
1	Thames river.....	Gas.

ST. CLAIR RIVER—DISTRICT No. 12.

1	Courtwright.....	Gas.
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SOUTHAMPTON—DISTRICT No. 15.

4	Chantry island, north.....	Gas.
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GEORGIAN BAY—DISTRICT No. 16.

	Cove island.....	Gas and whistling.
1-P.	Vails point.....	Gas and bell..
2-P.	Hooper island.....	Gas.
3-P.	Middle ground.....	"
4-P.	Three tar shoal.....	"
5-P.	Seguin bank.....	Gas and whistling.
6-P.	Lone rock.....	"
7-P.	Lockerbie rock.....	Gas.
8-P.	Surprise shoal.....	Gas, whistling and bell.
10-P.	Kennedy bank.....	Gas.
	Lottie Wolf shoal.....	"
	Bennet bank.....	"
1-B.	Maganatawan ledges.....	"
2-K.	Entrance Key inlet.....	"
8-K.	Murray bend inlet.....	"
14-K.	Keefer bend, inlet.....	"
20-K.	Digsby, inlet.....	"
24-K.	Mann reef, inlet.....	"
26-K.	Inside reef, inlet.....	"

STURGEON RIVER—DISTRICT No. 17.

1-N.	Sturgeon bar.....	Gas.
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SAULT STE. MARIE—DISTRICT No. 18.

1	Vidal shoal, north side, upper end.....	Gas.
2	Vidal shoal, south side, upper end.....	"
3	Vidal shoal, north side, lower end.....	"
4	Upper entrance, south side.....	"
5	Upper entrance, north side.....	"

PORT ARTHUR—DISTRICT No. 19.

1	Port Arthur.....	Gas.
2	Southeast dredged channen, Fort William.....	"
3	Northeast " ".....	"
4	Hare island reef.....	Gas and bell.

STATEMENT showing complete list of stations at which gas buoys were in operation throughout the Dominion during the fiscal year 1911-12.—*Concluded.*

BRITISH COLUMBIA DIVISION—DISTRICT No. 24.

Section No.	Name of Section.	Description of Buoy.
1	Lookout island.....	Gas beacon.
2	Kyuquot.....	Gas and whistling.
19	San Juan.....	"
23	Lewis reef.....	Gas beacon.
24	Kelp reef.....	"
25	Dock island.....	"
26	Canoe rock.....	"
27	Helen point.....	"
28	Mary Ann point.....	"
29	Walker rock.....	"
30	Coffin islet.....	"
31	Danger reef.....	"
32	Joan point.....	"
33	Gabriola reef.....	"
35	Sand-heads.....	Gas and whistling.
36	Grey point.....	Gas and bell.
37	First narrows, Vancouver harbour.....	Gas beacon
40	Seechelt.....	"
42	Gallows point, Nanaimo harbour.....	"
43	West rocks.....	"
44	Goose spit.....	"
45	Kelp bar.....	Gas and bell.
47	Oyster bay.....	"
49	Lund.....	Gas beacon.
50	Cortez island.....	Gas and bell.
52	Gillard island.....	Gas beacon..
53	Maud island.....	"
54	Chatham point.....	"
56	Helmcken island.....	"
58	Haddington reef.....	Gas.
60	Crane island.....	"
64	Zero rock.....	Gas beacon.
67	Fog rocks.....	Gas and beacon.
69	Camp island.....	"
70	Dall patch.....	Gas and whistling.
72	Vancouver rock.....	"
73	Jorkins point.....	Gas beacon.
74	Boat bluff.....	"
84	Klewnuggit.....	"
85	Connis island.....	"
86	Watson rock.....	"
88	Marked tree bluff, Kennedy island.....	"
89	Holland rock.....	"
92	Casey point.....	Gas.
93	Georgia rock.....	Gas and bell.
94	Spire ledge.....	Gas.
95	Barrett rock.....	"
96	Coast island.....	Gas beacon..
97	Ridley island.....	"
101	Alford rock.....	Gas.
103	Hodgson reef.....	Gas and whistling.
105	Pointers.....	Gas beacon.
107	Browning entrance.....	Gas and whistling.
110	Lawn point, Skidegate.....	"
111	Low island.....	Gas beacon.
112	Copper island.....	"
114	Koya point.....	"
116	Flat rock island.....	"

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The following new buoys and gas beacons were established:—

NOVA SCOTIA.

Skinner Reef No. 130, gas buoy.	Basson Reefs, bell buoy.
McNeils Beach, No. 117, gas buoy.	Sambro Bank, lightship (winter only).
Baleine Harbour, bell buoy.	Grampus Shoal, bell buoy.
North Entrance Gut of Canso, whistling buoy.	Woods Harbour, bell buoy.

NEW BRUNSWICK.

Tormentine Reefs, bell buoy.	Black Point No. 9, gas and whistling buoy.
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QUEBEC.

Magnacha Spit No. 2, gas buoy.	Empress Shoal 84-B, gas buoy.
Fame Point (Experimental), submarine bell buoy.	Montreal Harbour 201-M, gas buoy.

ONTARIO.

Minnie Blakely Shoal No. 106-T, gas buoy.	Bennett Bank gas buoy.
Bears Rump, gas buoy.	
Cove Island, gas and whistling buoy.	Hair Island Reef, gas and bell buoy.
Lottie Wolf Shoal, gas buoy.	

BRITISH COLUMBIA.

Connis Island No. 85, gas beacon.	Sand Heads Lightship, submarine bell.
Jorkins Point No. 73, gas beacon	Koya Point No. 114, gas beacon.
Canoe Rock No. 26, gas Beacon.	Flat Rock Island No. 116, gas beacon.

The following changes were made to floating aids to navigation:—

NOVA SCOTIA.

Southwest Ledge, Cape Sable, gas and whistling buoy was moved about one mile southwesterly from its former position.

Blonde Rock, gas and whistling buoy was moved to a new position about two miles southwesterly from the rock.

NEW BRUNSWICK.

Partridge Island, gas and whistling buoy has been withdrawn.

Black Point, whistling buoy has been withdrawn and a gas and whistling buoy substituted.

ONTARIO.

Hare Island reef, gas and bell buoy has been moved about eight cables north-easterly to the tail of the bank.

Port Arthur, gas buoy has had a bell established thereon.

Cove island, whistling buoy has been discontinued and a gas and whistling buoy substituted.

Enclosure No. 4.—Statement giving a complete list of stations at which unlighted buoys were in operation throughout the Dominion during the fiscal year 1911-12.

PRINCE EDWARD ISLAND DISTRICT.

	No. of Buoys.		No. of Buoys.
Bay Fortune..	3	Miminegash..	6
Beach Point..	3	Montague..	7
Bedeque..	11	Murray harbour..	40
Belle river..	3	New London, 14 stakes and..	9
Brae harbour..	5	Orwell and Vernon river, 36 bushes..	6
Brudenell river..	4	Pinette, number of bushes and.. . . .	9

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	No. of Buoys.		No. of Buoys.
Cardigan, lower, 2 winter buoys and..	7	Port Hill..	12
Cardigan, upper..	20	Pownal..	7
Cascumpee..	16	Rollo Bay..	3
Charlottetown, 20 stakes..	18	Rustico..	5
Covehead..	3	Savage harbour..	4
Crapaud, stakes and..	6	Souris..	4
East river (Hillsboro')..	18	St. Peters harbour..	10
Egmont Bay, North, 16 stakes, and..	7	Summerside..	10
Egmont South, 8 stakes and..	2	Tignish..	4
Georgetown..	19	Tracadie..	7
Goose harbour..	2	West point..	2
Grand river, 1 beacon and..	12	Wood island..	4
Grand river, lot 14..	8	Maintained by agency: bell buoys..	1
Grand Tracadie..	4	—— conical and can..	11
Little channel..	3	—— whistling..	4
Malpeque..	16		

LIST of unlighted Buoys maintained by the Department of Marine and Fisheries in Canadian Waters during the Fiscal Year 1911-12.

NOVA SCOTIA DISTRICT.

Advocate harbour..	6	McNab's cove..	2
Apple river..	8	Musquodoboit..	7
Arichat..	20	Martins brook..	6
Argyle river and sound..	10	Meteghan river..	2
Avon river..	6	Northport..	12
Amherst basin..	4	North Sydney..	5
Barrington..	36	Neil's harbour..	1
Bear river..	17	Parrsboro..	6
Beaver harbour, 8 winter buoys and..	8	Petit de gras, 6 winter buoys and..	14
Blandford..	5	Pictou..	6
Bridgewater..	10	Pope Harbour..	1
Brulé, 5 stakes and..	4	Port Félix..	11
Canning or Habitant river..	6	Port Hood..	7
Canso and St. Andrew passage, 20 winter buoys and..	26	Port La Tour..	16
Cape Negro or Northwest harbour..	17	Port Medway..	4
Cariboo..	6	Port Philip..	12
Chester..	25	Port Morien..	2
Cheticamp..	12	Port Hébert..	12
Chezzecook and Petpeswick..	10	Pubnico..	21
Christmas island and Barra strait..	11	Pugwash..	9
Clarke's cove, West bay..	3	Prospect, lower..	10
Clarke's harbour..	17	Port Mouton..	9
Cockerwit pass..	19	Port Bickerton, 3 winter buoys and..	5
Cooks cove, Toby cove..	4	Pennant harbour..	9
Calf Island bay..	5	Pringle harbour..	4
Crooked channel..	5	River John, stakes and..	3
Crow harbour..	3	Roseway..	3
Descourse and Lennox passage.. . . .	28	St. Ann's..	5
Digby and Annapolis, 5 winter buoys.	14	St. Mary river, winter buoys and..	9
Dover..	4	St. Mary river, up to Sherbrooke, 5 winter buoys and..	18
East Dover..	4	St. Peters bay, 4 winter buoys and..	15
East Bay, Bras d'Or..	8	St. Peters inlet..	10
Eskasoni..	4	Sambro..	12
Fourchu harbour..	11	Shag harbour..	17
French Village, St. Margarets bay..	5	Sheet harbour, 5 winter buoys and..	9
Great Bras d'Or..	8	Shelburne..	25
Gillis point, Boulacet..	1	Ship harbour, 5 winter buoys and..	11
Guysborough..	3	Ship rock, strait of Canso..	1
Glace bay..	4	Shulee..	8
Goose bay, 35 stakes and..	8	Smith island..	2
Hay Cove..	17	Sydney..	2
Harbour au Bouche, 6 stakes.. . . .	4	Shad bay..	4
Ingonish, South bay..	9	Sober island to Ecum Secum.. . . .	21
Isaacs harbour, 9 winter buoys and..	13	Spry bay..	6
Indian harbour..	4	Stoney island, Baddeck..	6
Jeddore, 5 winter buoys and.. . . .	11	Tangier, 7 winter buoys and.. . . .	4
Jegogan..	7	Tatamagouche, 46 stakes and.. . .	18
Judique..	1	Terence bay..	3
Ketch harbour..	6	Torbay, 8 winter buoys..	19

SESSIONAL PAPER No. 21

LIST of unlighted Buoys maintained by the Department of Marine and Fisheries,
&c.—*Continued.*

NOVA SCOTIA DISTRICT.—*Continued.*

	No. of Buoys.		No. of Buoys.
L'Ardoise.. . . .	5	Three Fathom harbour.. . . .	5
Lahave.. . . .	17	Tidnish, stakes and.. . . .	5
Little Narrows.. . . .	10	Tusket.. . . .	31
Little Dover.. . . .	9	Tancook island.. . . .	3
Little Bras d'Or.. . . .	12	Upper Prospect.. . . .	4
Liverpool.. . . .	3	Volgers cove.. . . .	3
Lockeport.. . . .	6	Wallace.. . . .	15
Lunenburg.. . . .	8	Walton harbour.. . . .	1
Lunenburg, back cove.. . . .	9	Washabuck river.. . . .	3
Lunenburg, middle south.. . . .	16	West bay.. . . .	5
Louisburg.. . . .	8	West Dublin.. . . .	12
Liscomb, 4 winter buoys and.. . . .	6	Westport.. . . .	3
Mabou.. . . .	19	Weymouth.. . . .	13
Mahone bay.. . . .	9	Whitehead, 5 winter buoys and.. . . .	9
Main-à-Dieu.. . . .	5	West Chezetcook.. . . .	7
Margaree harbour.. . . .	9	Yarmouth, 38 bushes and.. . . .	12
Merigomish, balises and.. . . .	6	Maintained by agency—	
Marie Joseph, 10 winter buoys and.. . . .	13	Whistling buoys.. . . .	15
Monseillier, 4 stakes and.. . . .	6	Bell buoys.. . . .	41
McKinnon harbour.. . . .	6	Steel conical and can buoys.. . . .	194

NEW BRUNSWICK DISTRICT.

Aldouane, 25 bushes and.. . . .	5	Maquapit and French lakes.. . . .	8
Alma.. . . .	3	Miramichi river, northeast arm.. . . .	10
Bathurst.. . . .	26	“ “ northwest arm.. . . .	7
Baie Verte and Port Elgin	36	“ “ southwest arm.. . . .	4
Bay du Vin.. . . .	12	“ “ 9 winter buoys and.. . . .	35
Beaver and Black's harbour.. . . .	9	Miscou.. . . .	8
Black Brook, Miramichi river.. . . .	3	Musquash.. . . .	7
Black Lands gully.. . . .	12	Neguac.. . . .	19
Buictouche, 34 stakes and.. . . .	22	Napan river, 24 stakes and.. . . .	3
Buictouche river, bushes and buoys.. . . .	260	Petit Rocher.. . . .	1
Bertibog, 12 bushes.. . . .	1	Pisarinco.. . . .	2
Campobello.. . . .	10	Pokemouche, number of bushes and.. . . .	6
Caraget.. . . .	15	Quaco.. . . .	3
Caraget to Mizonette.. . . .	3	Richibucto and Albion.. . . .	33
Cocagne, stakes, 30 and.. . . .	11	Richibucto, Rexton and Brown's yard.. . . .	30
Dalhousie and Restigouche.. . . .	10	Salmon river.. . . .	15
Digdequash.. . . .	5	Shediac.. . . .	17
Dipper harbour.. . . .	3	Shamper's wharf, 15 stakes.. . . .	
Dorchester.. . . .	3	Shippigan, 17 pickets, 14 bushes and.. . . .	20
Grande Anse.. . . .	4	St. Andrews.. . . .	15
Grand Lake.. . . .	32	Ste. Croix ledge.. . . .	11
Grand Manan, 1 spindle and.. . . .	28	St. John river, 159 stakes and.. . . .	76
Grassy island, 15 stakes and.. . . .	7	St. Louis, 35 bushes.. . . .	9
Great Shemoque.. . . .	7	St. Simon bay, Caraget.. . . .	4
Hatfield point, bushes.. . . .		Tabusintac.. . . .	20
Harvey.. . . .	7	Tracadie, South Gully, 30 bushes and.. . . .	5
Hopewell cape.. . . .	1	Tracadie, North Gully, 100 bushes and.. . . .	11
Indian Point Bar channel, 10 bushes and.. . . .	3	Tynemouth creek.. . . .	3
Kouchibouguac and Blac River, bushes		Washadamoak, 144 bushes and.. . . .	2
Little Aldouane, 25 bushes and.. . . .	5	Waweig river.. . . .	2
Lepreau.. . . .	3	West Isles, 4 spindle and.. . . .	23
Lefite and Back bay.. . . .	14	Maintained by agency—	
Little Shemoque, 1 beacon and.. . . .	5	Bell buoys.. . . .	16
Little Shippigan.. . . .	12	Whistling buoys.. . . .	6
Magaguadavic.. . . .	13	Conical and can buoys.. . . .	40
		Spar buoys.. . . .	40

QUEBEC DISTRICT.

Amherst Harbour, Magdalen Islands.. . . .	8	Little River, east.. . . .	1
Anse à Gascons.. . . .	1	Little River, west.. . . .	1
Anse à Beauvils.. . . .	1	Magdalen island.. . . .	12
Barachois de Malbaie.. . . .	1	Matane.. . . .	2

LIST of unlighted Buoys maintained by the Department of Marine and Fisheries,
&c.—Continued.

QUEBEC DISTRICT.—Continued.

	No. of Buoys.		No. of Buoys
Bonaventure river.. . . .	8	Mont Louis.. . . .	1
Cape Chat.. . . .	1	Natashkwan.. . . .	6
Cape Cove.. . . .	1	New Richmond.. . . .	4
Carleton point.. . . .	1	North channel, Island of Orleans..	13
Chicoutimi, Saguenay river..	33	Nouvelle.. . . .	2
Cape Despair.. . . .	1	Paspebiac.. . . .	1
Duthrie point.. . . .	2	Pentecost.. . . .	1
Eschourie rock, Serpent reef, . . .	1	Percé.. . . .	3
Fox river.. . . .	1	Port Daniel.. . . .	1
Gaspe.. . . .	6	Restigouche river.. . . .	17
Grand Entry.. . . .	17	Rivière à la Pipe, Lake St. John..	8
Gros Cap-aux-Os.. . . .	1	St. Anne river.. . . .	1
House harbour, Magdalen islands..	16	St. Godfroy.. . . .	1
Lake St. John..		Maintained by agency—	
Ashnapmouchouan river, 30 balises		Whistling buoys.. . . .	3
and.. . . .	7	Bell buoys.. . . .	1
Mistassini river, 60 balises and..	12	Steel conical and can buoys.. . .	39
Peribonka river and Roberval har- bour, 35 balises and.. . . .	16		

MONTREAL DISTRICT.

Lake Mephrumagog.. . . .	1	Maintained by agency—	
Richelieu river, Sorel to Chambly..	37	Conical.. . . .	13
Richelieu river, above St. Johns..	25	Can.. . . .	16
Rivière des Prairies.. . . .	11	Spar.. . . .	167

ONTARIO DISTRICT.

Bad Neighbour shoal, Lake Huron..	1	North Sisters Rock, Georgian Bay..	4
Bar Point, Georgian Bay.. . . .	1	Orillia, 11 bushes.. . . .	7
Bay of Quinte.. . . .	33	Owen Sound, Georgian Bay.. . . .	4
Bear's Rump, Georgian Bay.. . . .	1	Parry Sound Approach, Georgian Bay.	19
Bernard Rock, Georgian Bay.. . . .	1	Pembroke.. . . .	23
Blind River.. . . .	5	Penetanguishene.. . . .	10
Byng Inlet, Georgian Bay.. . . .	22	Pointe au Baril, beacons 15.. . . .	4
Campana Shoal, Georgian Bay.. . . .	1	Port Arthur.. . . .	17
Campbell Rock, Georgian Bay.. . . .	1	Port McNicoll, Georgian Bay—	
Clapperton Channel, 1 beacon and..	9	C.P.R. dock range.. . . .	1
Collingwood Harbour, Georgian Bay..	13	Flat Point.. . . .	1
Dawson Rock, Georgian Bay.. . . .	1	Snake Island.. . . .	1
Detroit river.. . . .	67	Port Rowan.. . . .	10
Goderich.. . . .	5	Presqu'île bay, Lake Ontario.. . . .	17
Great Duck Island, Lake Huron.. .	1	River Thames.. . . .	7
Jackson Shoal, Georgian Bay.. . . .	2	Rondeau.. . . .	6
Jennie Graham Shoal, Lake Huron..	1	St. Joseph channel, Lake Huron . . .	17
Kaministiquia river, Fort William..	8	Sault Ste. Marie canal approaches...	28
Key Inlet, Georgian Bay.. . . .	19	South Baymouth.. . . .	4
Lake of the Woods.. . . .	204	Stokes Bay.. . . .	6
Lake Simcoe.. . . .	5	Saugeen river.. . . .	8
Lake Superior.. . . .	8	Sturgeon river.. . . .	25
Lake Temiskaming.. . . .	18	Timogami Lake, 4 beacons and.. .	31
Little Current.. . . .	10	Trent Canal (maintained by Dept. of Railways and Canals.. . . .	317
McClelland Rock, Parry Sound Ap- proach, Georgian Bay.. . . .	1	Victoria Island, Lake Superior . . .	3
Mary Ward shoal, Georgian Bay.. .	3	Victoria Harbour, Georgian Bay.. .	1
Michipicoten.. . . .	8	Waubauskene.. . . .	37
Midland.. . . .	6	Warrens Landing, Lake Winnipeg..	12
Morden rock, Georgian Bay.. . . .	1	Winnipeg river.. . . .	13
Murray Canal and Presqu'île bay..	23	Wingfield Basin, Georgian Bay.. .	4
Napancee.. . . .	14	Maintained by Prescott agency—	
Northeast shingles, Georgian Bay..	1	Between Coteau and Kingston.. . .	82

LIST of Unlighted Buoys maintained by the Department of Marine and Fisheries.

Name of Buoy.	Position.	Description.
Tees rock.....	Near Easy creek.....	Spar buoy.
Hesquot.....	Fairway harbour ent.....	Steel, whistle, white and black, vertical.
Half-tide rock.....	Hecate passage, Clayoquot sound.....	Platform, ball, red.
North bank.....	" " " " " "	" " drum, black.
Vargas rock.....	" " " " " "	" " ball, red.
Browning passage.....	West end of pass " " " "	Spar, red and black bands.
Browning passage.....	North shore bank " " " "	" " black.
Browning passage.....	Middle bank " " " "	" " red.
Hankin rock.....	Mosquito harbour " " " "	Platform, red and black.
Round island (north).....	Round island bank " " " "	Spar, black.
Round island (south).....	Templar channel " " " "	" " red.
Templar channel.....	Village island " " " "	Steel, can, drum, black.
Amphitrite point.....	Carolina channel, Barclay sound.....	Whistle, steel, red.
Sutton rock.....	Ucluelet harbour " " " "	Platform, red and black.
Rosedale rock.....	Race rocks, Juan de Fuca st.....	Steel, can, black.
Whale rock.....	Esquimalt harbour.....	Spar, red and black.
Patterson rock.....	" " " " " "	Platform, black.
Canteen.....	" " " " " "	" " red.
Channel rock.....	Victoria harbour.....	" " ball, black.
Songhees rock.....	" " " " " "	Spar, black.
Hospital rock.....	" " " " " "	Platform, ball, black.
Shoal point.....	" " " " " "	Spar, red.
Victoria inner harbour.....	" " " " " "	" " red and black.
Johnstone reef.....	Haro strait.....	Steel, can, black.
Darcy shoal.....	" " " " " "	" " " "
Sidney spit (e).....	Sidney channel.....	" " conical, red.
Sidney spit (w).....	" " " " " "	Spar, red.
Sidney wharf (s).....	Shoal off Sidney wharf.....	" " " "
Sidney wharf (n).....	" " " " " "	Platform, red.
Sidney rock.....	Rock off Sidney wharf.....	Steel, conical, red.
Eastern buoy.....	Pender canal.....	" " black.
Western buoy.....	" " " " " "	Platform, drum, black.
Colbourne passage (s).....	Colbourne passage.....	" " ball, red.
Colbourne passage (n).....	" " " " " "	Steel, conical, red.
Celia reef.....	Shute passage.....	" " " "
Entrance point.....	Satellite channel.....	" " can, black.
Batt rock.....	Ganges harbour.....	Platform, ball, black.
Horda rock.....	" " " " " "	" " " "
Benmohr rock.....	Trincomali channel.....	Steel, can, red and black.
Governor rock.....	" " " " " "	Spar, black.
Victoria rock.....	" " " " " "	Bell, steel, black and white.
Virago rock.....	Porlier pass.....	Steel, can, black.
Porlier pass fairway.....	" " " " " "	" " " "
Grappler reef.....	Houston passage.....	" " can, red and black.
Indian reef.....	Stuart channel.....	" " conical, red.
False reef.....	" " " " " "	Spar, red.
White rock.....	Trincomali channel.....	" " black.
South east.....	False narrows.....	" " red.
East.....	" " " " " "	" " black.
Middle.....	" " " " " "	" " red.
West.....	" " " " " "	" " black.
Rosenfelt reef.....	Strait of Georgia.....	Steel, can, cage, black.
Gossip reef.....	Active pass.....	Bell, steel, black.
Canoe pass.....	Robert bank.....	Steel, can, black.
Sand heads.....	Channel across Sandheads.....	{ 5 steel, conical, black. 8 " conical, red.
First Narrows.....	South side of Narrows.....	Spar, red.
Burnaby shoal.....	Vancouver harbour.....	" " " "
Second narrows.....	" " " " " "	Steel, can, cage, black.
Reef point.....	Strait of Georgia.....	Spar, red.
Welcome point.....	Welcome pass.....	" " " "
Tattenham ledge.....	" " " " " "	Spar, black.
Snake island reef.....	Strait of Georgia.....	Steel, conical, red.
Horswell reef.....	" " " " " "	" " " "

LIST of Unlighted Buoys maintained by the Department of Marine and Fisheries—*Con.*BRITISH COLUMBIA DISTRICT.—*Continued.*

Name of Buoy.	Position.	Description.
Clark rock.....	Inner channel.....	Steel, can, black.
Entrance.....	Nanaimo harbour.....	Platform, black, triangle.
Oyster harbour.....	Stuart channel.....	" black.
Sawmill point.....	Ladysmith.....	" ball, black.
Boat harbour.....	Stuart channel.....	Steel, conical, red.
Entrance point.....	".....	" "
Reynold point.....	".....	Spar, red.
Danger rock.....	".....	" "
Gallows point.....	Nanaimo harbour.....	Platform, ball, red.
South channel.....	".....	" diamond, black.
Middle bank.....	".....	" ball, red.
South channel (w).....	".....	" diamond, black.
Satellite reef.....	".....	" ball, red.
Middle bank (s. w).....	".....	Spar, red.
Middle bank (w.).....	".....	" "
Carpenter rock.....	".....	Platform, ball, black.
Mill stream.....	".....	" black.
Passage rock.....	Newcastle Island passage.....	" "
Departure bay reef.....	Departure bay.....	" ball, red.
Dorcas rock.....	Dorcas point.....	Spar, black.
Hornby Wharf reef.....	Lambert channel.....	" "
Reef bluff (s.).....	Baynes Sound.....	Steel, conical, triangle, red.
Reef bluff (w.).....	".....	" " " "
Village point.....	".....	" " triangle
Grassy point.....	".....	Steel, can, black.
Kelp bar (w.).....	".....	Spar, red.
Kelp bar (e.).....	".....	" "
Atrevida reef.....	Malaspina strait.....	" "
North reef.....	North end, Texada island.....	Spar, black.
Shark spit.....	Marina island.....	Steel, conical, red.
Whaleton rock.....	Whaleton Bay.....	Spar, red.
Cape Mudge.....	Strait of Georgia.....	Steel, conical.
Siwash rock.....	Johnston strait.....	Spar, black.
Ripple reef.....	".....	Steel, can, red and black.
Swan rock.....	Addenbrooke point, Fitzhugh sound.....	Spar, black.
Walbran rock.....	Fisher channel.....	Steel, conical, red and black.
Bloxam rock.....	Telegraph passage.....	Spar, black.
Centre bank.....	Skeena river.....	Steel, nun, red.
Hazel point.....	Middle passage.....	Spar, red.
Kitson bank (1).....	Prince Rupert approach.....	Steel, conical, red.
Kitson bank (2).....	".....	" " "
South Porpoise.....	".....	Spar, red.
North Porpoise (1).....	".....	" black.
North Porpoise (2).....	".....	" "
North Porpoise (3).....	".....	" "
Tree bluff.....	Chatham sound.....	Steel, can, drum, black.
Ellinor rock.....	Prince Rupert approach.....	" red and black.
Kestrel rock.....	".....	Spar, black.
Petrel rock.....	".....	Can. steel, black, cage.
Tugwell reef.....	Metlakatla.....	Spar, black.
Harbour channel (w).....	".....	Platform, black.
Harbour channel (e.).....	".....	" "
Sparrowhawk rock.....	Cunningham passage.....	Steel, can, red and black.
Hankin reefs.....	".....	Platform, red.
Dodd passage.....	Port Simpson.....	Spar, black.
Harbour reefs.....	".....	Steel, conical, red.
Lion point.....	Portland canal.....	" conical.
Salmon river.....	".....	" can, cage.
Portland canal flats (1)...	".....	Platform.
Portland canal flats (2)...	".....	" "
Mid rock.....	Skeena river.....	Spar buoy.
Kootenay river mouth....	N. W. end of spit at entrance to W. channel, S. end.....	Platform surmounted by slatwork pyramid with cross on top.
Kootenay river mouth....	N. end of island at same entrance, opposite last.....	" " "

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LIST of Unlighted Buoys maintained by the Department of Marine and Fisheries—*Con.*BRITISH COLUMBIA DISTRICT.—*Concluded.*

Name of Buoy.	Position.	Description.
Balfour.....	Outer end of spit, N. side entrance to west arm.....	Platform surmounted by slatwork pyramid.
Sawmill Middle ground...	E. of the Narrows.....	Platform surmounted by slatwork pyramid with cross on top.
The Narrows.....	Near Sawmill point.....	" " "
Middleground.....	Between old mill and Narrows.....	" " "
Thirteen-Mile point.....	On N. end of spit.....	" " "
Yuills shoal, upper end....	Near mouth of Kokani creek.....	" " "
Yuills shoal, lower end....	" " " " " " " " " " " "	" " "
Nine-Mile point.....	On N. end of spit which nearly crosses channel.....	" " "
Seven-Mile point.....	On N. end of spit.....	" " "
Six-Mile point.....	On S. end of spit.....	" " "
Five-Mile point.....	On N. end of spit.....	" " "
Shipyard shoal.....	On middle ground opposite shipyard, N. of Nelson.....	" " "
Arrow lakes, upper and lower.....	.....	15 spar buoys.
Kootenay lake.....	.....	11 buoys.

BUOYS SHOWING LIGHTS FROM COAL OIL LANTERNS.

Stubbs spit.....	Clayoquot sound.....	Red, fixed light.
Mears spit.....	" " " " " " " " " " " "	White fixed light.
Hospital point.....	Victoria harbour.....	Red fixed light.
Proctor middle ground....	Kootenay lake.....	White fixed light.

The whole respectfully submitted.

J. G. MACPHAIL,
*Commissioner.*Commissioner of Lights Office,
Department of Marine and Fisheries,
Ottawa, April 1, 1912.

APPENDIX No. 3.

RIVER ST. LAWRENCE SHIP CHANNEL.

OTTAWA, ONT., August 12, 1912.

The Deputy Minister of Marine and Fisheries,
Ottawa, Ont.

SIR,—I have the honour to present the following annual report on the operations for the improvements of the River St. Lawrence Ship Channel during the fiscal year ending March 31, 1912.

Accompanying this report is a map showing the progress made up to date, on the ship channel between Montreal and Quebec, to 30 and 35 feet at extreme low water of 1897.

I have the honour to be, sir,

Yours obediently,

VICTOR F. W. FORNERET, B.A.Sc.,
Superintending Engineer.

THE HISTORY OF DREDGES AND DREDGING.

Dredging is an old industry, but it is only within the last fifty years in Europe, and during the past twenty-five years in America that rapid advances have been made in designs and types of machines, so that the cost of dredging has been materially reduced. It is impossible to give an accurate history of the industry of dredging, but a few facts can be given that may be of interest.

No doubt the ancients used some primitive forms of dredges, but if any such work was done by them it was generally near the shore and was in most cases done by hand. The boats used by the ancients were built to go in shallow water, so that there was not much need for the dredges.

The first forms of dredges were long-handled scoops operated by hand from floating platforms. Then a windlass or drum was used to aid in the work, and then scows were substituted for the platforms or rafts. The development was no doubt gradual, although it is a great step from these primitive scoops to the immense buckets and dippers of to-day.

In operating the early scoop dredges it was found that the work done stirred up much material which floated away when there was a strong current. This brought into use methods of stirring.

The first mention of a rude dredging machine is by a writer named Veranteus in the year 1591. The first power dredge was invented by a Dutch engineer, one Cornelius Meyer, in 1685. It was operated by horse power, and was used in constructing some of the canals and dykes of Holland.

On the continent of Europe the first elevator or ladder dredge was designed and patented by Savery in 1718. The first dredge of this type in England in 1747. Three years later in France iron buckets were first used on a ladder dredge. In 1781 a ladder dredge was built in England and operated by horse power.

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The first steam dredge was built in England in the year 1796, the engine being designed by the inventor James Watt. This was followed in 1804 by a machine of the same design, only heavier.

Little progress was made in dredge design, and building during the first half of the 19th century. During this time there was built in England a dredge of rather unusual design. A barge or scow had two movable wings at the stern that reached if desired to the two banks and to the bottom of the stream. At the back was a scraper that loosened the dirt, and the two wings, with the aid of the current, swept the loosened material ahead and finally deposited it at the mouth of the stream. The wings formed a temporary dam, which gave enough head to force the scow downstream. Some noteworthy work was done by such dredges.

The first hydraulic suction dredge was suggested in France in 1867, which was really the beginning of the construction of modern dredges. In 1872 the first dredge of this type was built in America. Cutters were first placed on hydraulic dredges in 1878. The credit of building the first hopper dredge in 1861 is given to England.

The dipper type of dredge was not originated in America, but it has been developed in the United States and is considered distinctly an American dredge.

In the last few decades wonderful strides in these machines have been made. From small buckets operating slowly, buckets of more than 14 cu. yds. are used with a pull of about 180,000 lbs. being exerted on the dipper, and three or four dips made per minute. Likewise the depth to which they will excavate has been greatly increased.

The grapple dredge has been an evolution of the dipper machine, and as its distinguishing feature is the clamshell or orange-peel bucket, it is evident that it is a modern machine.

Since 1890 both in Europe and America wonderful advances have been made in all types of dredges. One country has introduced a design while another has developed it and improved upon it.

HISTORY OF THE SHIP CHANNEL.

The St. Lawrence, owing to its situation, is the natural route from the Atlantic to the northern and northwestern half of the North American continent.

The opening of the Lachine canal, connecting Montreal with the Great Lakes, in 1825, established the route commercially.

The light-draught sailing vessels could then reach Montreal without trouble, except during a few weeks in the autumn, when they resorted to lightering.

In 1844, it was in an effort to give navigation up to Montreal for vessels of 500 tons, that the first work of dredging was undertaken.

The first proposals for improvements were discussed in 1825, the national character of the work being then recognized. Surveys were made and reported upon in 1831 and again in 1838.

In 1841, during an investigation, the committee proposed a tonnage duty sufficient to provide for the cost of the improved channel, which was considered would be less than that of lighterage. It was, however, agreed that 'in order to draw the produce of the west down the St. Lawrence, it was expedient to make the transit charges as light as possible.'

Operations were commenced by the 'Board of Works' in 1844 and continued until 1847, owing to opposition as to the location of the channel, the work was abandoned.

After 60 years it is now considered that the straight channel as commenced would have been preferable in many ways.

In 1850, the harbour commissioners of Montreal proposed that they could do the work economically and expeditiously. They asked for authority to undertake the work and to charge a tonnage duty to pay for the 8 per cent interest and 2 per cent sinking fund.

This plan was adopted in August, 1850, and the commissioners were authorized to proceed in such a manner as they should deem best, the government plan being transferred to them.

The harbour commissioners after examination and the best advice obtainable, adopted the location of the deepest natural channel in Lake St. Peter. This results in the present channel with five tangents, instead of two long straight courses as at first commenced.

The original depth through Lake St. Peter was 10 feet 6 inches.

From 1850 the channel was deepened from stage to stage until 1888, when the debt amounted to somewhat over three million dollars, the government decided to complete the channel as a national work, and to assume the debt, and from that day the channel has been open free to the commerce of the world.

At that date the channel had been deepened to 27½ feet at ordinary low water from Montreal to Cap a la Roche, and from there to Quebec the tide was available.

The work was then conducted by the Department of Public Works of Canada from 1889 until 1904, when the management and control of the river, together with the shops and dredges, were handed over to the Department of Marine and Fisheries, which had general charge of navigation.

At the present time a splendid channel of 30 feet at extreme low water exists from Montreal to Cap a la Roche, and to Quebec by taking advantage of the tide.

The success of the work is in a great measure due to the geographical situation of the route, the physical features of the river favourable for improvement, the determination and public spirit of the business men and industrial corporations of Montreal, and to the recognition by the government of Canada of the national character of the project.

ACCIDENTS IN THE ST. LAWRENCE RIVER.

Between Montreal and Father Point.

It speaks well for the safety of the ship channel, when considering the record low water stage which existed during the season of navigation of 1911 that no serious accident occurred in the ship channel proper.

There were only two serious accidents which occurred in the River St. Lawrence during the season of 1911, neither of which could be attributed to some fault in the channel.

One of these occurred below Quebec off Murray Bay on June 28, the steamer *Aranmore* collided with the steamer *General Wolfe*, causing the latter to sink and become a total loss, no lives, fortunately, were lost. The other serious accident was a collision above Quebec near St. Antoine between steamer *Hero* and side-wheel tow-boat *Chieftain III*, on August 20, the latter vessel being sunk with a loss of four lives. The channel where the accident occurred is over half a mile wide and very deep.

The minor accidents were as follows:—

Between Montreal and Quebec.

SS. *Stormount*, grounded near Longue Pte. Re-floated, no damage, May 6, 1911.

SS. *Isleworth*, grounded near Longue Pte. Re-floated, no damage, September 20, 1911.

SS. *Lake Champlain*, Montreal harbour, October 27, 1911. When leaving Montreal harbour at daylight, the steamer encountered a snow flurry. The pilot decided to anchor in the wide portion of the channel opposite the Laurier pier. In swinging round after dropping the anchor, she dragged with the current against the mud bank on the south side of the channel.

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After lightening part of her cargo, the steamer was pulled off with the aid of several powerful tugs. Slight damage was done to the rudder and propeller.

SS. *Bengore Head*, grounded in Lake St. Peter during snow storm. Re-floated, no damage, December 2, 1911.

Quebec to Father Point.

SS. *Manchester Spinner*, grounded on White Island. Re-floated, bottom damaged, docked for repairs, June 2, 1911.

MARINE SIGNAL SERVICE.

River St. Lawrence Ship Channel.

There are twelve stations established at the following places:—

Name of place.	Locality.	Nautical miles below Montreal.	In operation.
Montreal.....	In the Agency office, Boyer bld.....	00	Day and night.
Longue Pointe.....	On the extreme point.....	5	"
Vercheres.....	In the windmill near the wharf.....	19	During daylight.
Sorel.....	On the Government wharf.....	39	Day and night.
Three Rivers.....	On the upper end of Bureau wharf.....	71	"
Batiscan.....	At the wharf.....	87	During daylight.
St. Jean des Chaillons	On the hill at the semaphore.....	93	Day and night.
Portneuf.....	In the front range lighthouse.....	108	During daylight.
St. Nicholas.....	At semaphore station on summit of Point Nicholas.....	127	Day and night.
Bridge.....	On point above Quebec bridge.....	133	During daylight.
Quebec.....	In Marine & Fisheries Dept. bld.....	139	Day and night.
Crane island.....	On the wharf.....	171	"

The above stations are connected by a private through telephone system, terminating at Quebec and Montreal, with the exception of Crane Island, which communicates with Quebec via the Bell Telephone Company's system.

Each station has a mast 60 feet in height with a cross spar 20 feet long about 20 feet from the top of the mast.

When the station is in operation a 'Jack' is hoisted to the mast head during daylight, and a white light at night.

Signals displayed at west end of cross spar indicate river or points above station.

Signals displayed at east end of cross spar indicate river or points below station.

For other communications between vessels and stations or *vice versa*, the International Code of Signals is used.

The telephone service was started September 1, 1907, and the system of signals on November 5, 1908.

The combined service of telephone and signals has proved to be very useful, weather conditions being reported from the different stations along the river. The whereabouts of vessels can also be obtained.

Owing to its promptness, the service has been of great value in connection with the dredging operations, as in the event of breakages, &c., communication can immediately be obtained with the shops at Sorel, and orders can then be given for repairs, thereby saving a great deal of valuable time.

The stations were kept in good repair during the past season and some minor improvements were made to some of them.

Arrangements have been made with the Department of Public Works to acquire the top floor or 'dome' of the Custom House at Quebec, which is now being rebuilt.

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This will be used as a signal service station instead of the present quarters in the Marine Department buildings. In addition to being more commodious, it is better situated to observe and report the movements of vessels in the harbour.

It is also the intention of the Department of Marine and Fisheries to start a new signal station at Grondines Point next season. The old windmill situated on the point has been purchased by the department and is now being restored and converted into a telephonic and reporting station. It is expected that it will be in operation during the early part of next summer.

SOREL, May 1, 1912.

SIR,—I have the honour to submit the following report on the work of the ice-breakers *Lady Grey* and *Montcalm*, during the winter of 1911-12.

The season of navigation of 1911 closed with very cold weather. Between December 1 and December 10, the thermometer registered near or below the zero mark at nights. After December 10 the temperature was extremely mild until December 30, when it again turned cold and the months of January, February and March were exceptionally severe.

The *Bray Head*, the last ship to leave Montreal, sailed on December 4. To enable this steamer to clear the river in safety all the buoys had been left in position.

The *Lady Grey* was detailed to aid the *Shamrock* in lifting these buoys, and rendered invaluable service. Without the assistance of an ice-breaker it is certain that very many of the buoys would have been lost, and that the *Shamrock*, Acetylene scow and tugs would have been forced to winter at Three Rivers. On December 4, when the *Bray Head* went down the river was practically full of running ice, and the next day Lake St. Peter was frozen over solid. The breaking up of the Lake St. Peter ice, which would have been an impossible task for the *Shamrock*, was light work for the *Lady Grey*, and all the vessels employed in the buoy service were enabled to get back to Sorel to winter quarters.

Owing to the mild weather in December, it was not necessary to do any patrol work at Cap Rouge, and no trouble was experienced until January 8, about a week after the severe weather had set in.

On Monday, January 8, the Signal Service at Quebec reported that the ice had blocked in the vicinity of Batiscan for several miles.

The same thing occurred at this point during the winter of 1911, followed a few days later by jams at Grondines and Portneuf, and in a very short time the river was covered with ice from Portneuf to Three Rivers. The ice-breakers began cutting through this ice on February 15, and were exactly one month working up to Three Rivers. Apart from additional running expenses, the wear and tear on the ships was heavy, and extensive repairs had to be made to both vessels in the spring.

To avoid a repetition of this condition of affairs, that is, having the river blocked from Portneuf to Montreal, with many miles of heavy ice-breaking to be done, it was decided to send the *Lady Grey* to attempt to break up the ice at Batiscan while it was still light, leaving the *Montcalm* in Quebec to guard Cap Rouge.

The *Lady Grey* left Quebec January 10, and by January 12, had reached Three Rivers, having cut her way through 16 miles of ice, leaving a channel behind her no where less than three quarters of a mile wide.

Late in the afternoon of January 12, the report came from Quebec, that the ice had jammed at Cap Rouge, and that the *Montcalm* had not been able to cut her way through.

For several days after the arrival of the *Lady Grey* at Three Rivers it was impossible for her to return, owing to the fact that the weather was extremely cold and the river was covered with vapour, so that shore marks could not be seen.

The non-success of the *Montcalm* in breaking up the jam at Cap Rouge was entirely due to the fact that the summer equipment of propellor blades was still in

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use, and therefore the ship lacked power, when going astern; the working ahead into the ice faster than half speed the ship was invariably stuck and the greatest difficulty experienced in backing out; as a direct consequence, the jam piled up faster than it could be cut out.

Five days after the jam occurred at Cap Rouge the river was covered with ice as far up as St. Croix, and two weeks after it was solid to Montreal, with the *Lady Grey* frozen in and out of business at Three Rivers.

The *Montcalm* worked at the Cap Rouge jam whenever possible, but was not able to cut through. This vessel made several trips to Seven Islands during the winter, which interfered with operations at Cap Rouge, but had she been able to work steadily without interruption, in all probability the result would have been the same.

The weather continued cold right up until the end of March, and it was only on April 16, that the first shoving of the ice was reported, and it was not until April 29 that the river was finally clear. The *Lady Grey* was not able to do anything to hasten matters, as all the serious jamming occurred below Three Rivers, principally between Grondines and Cap Rouge. It is not possible for an ice-breaker to work down stream through an ice jam.

In 1909-10-11 the ice was broken up by the ice-breakers, passing out quietly and there was no floods. This year the ice-breaking service broke down, and there was considerable flooding, the water reaching a point 18 feet 4 inches above extreme low water mark at Three Rivers. All the parishes from Ste. Anne de la Parade to Sorel suffered from the high water, and a great deal of damage was done by ice at different points. The Canadian Northern Railway was compelled to stop running for several days owing to floods and ice near Portneuf.

The main object of the ice-breaking has always been considered to be the preventing of floods, and coupled with this as a secondary consideration, earlier navigation to Montreal, and a longer season for dredging operations.

It has been demonstrated that floods can be prevented sometimes, but from the experience of last winter it has not been shown that they can be prevented without fail. It has been proved that the two ships now employed are not enough to keep the channel open from Quebec to Three Rivers. The only way to obtain this result is by increasing the plant. I am very strongly of the opinion, that if this were done, an open channel could be maintained every winter between these points.

At the latter end of April, a request was received from the Department of Railways and Canals, asking that the *Lady Grey* be sent up to the Soulanges Canal to break up an accumulation of ice and frazil that had formed at the lower entrance. This vessel had performed the same work, most successfully, the previous year.

Instructions were immediately given to the captain of the *Lady Grey* to proceed to the Soulanges canal. She left Montreal on the morning of April 29, and by noon of May 1, after two days work, had cleared the channel as requested, allowing vessels to pass up and down freely.

Had the *Lady Grey* not been available to break up this jam, navigation in the canals would have been delayed for at least several days.

The expeditious manner in which this important work was performed gives additional proof of the usefulness of this vessel.

I have the honour to be, sir,

Your obedient servant,

N. B. McLEAN.

V. W. FORNERET, Esq., C.E.,

Superintending Engineer,

River St. Lawrence Ship Channel,

Dept. of Marine and Fisheries,

Sorel, Que.

GENERAL INFORMATION.

The ship channel of the River St. Lawrence, between Montreal and Father Point, has a total length of 340 statute miles.

The contracted part of the river, which may properly be called 'ship channel,' commences at Traverse, to which point from Montreal, the distance is 220 miles.

The project for a 30 foot channel between Montreal and Quebec was adopted in 1889, while the improvements below Quebec were decided upon in 1906.

The project for the channel between Montreal and Quebec had in view a channel of 30 feet depth, at the extreme low water of 1897, from Montreal to tidal water at Batiscan, and from Batiscan to Quebec at extreme low tide. The width contemplated was a minimum of 450 feet in the straight portions, and from 550 to 750 feet at the bends. An anchorage was to be provided at White Buoy curve, Lake St. Peter, of 800 feet in width.

The 30-foot channel is now completed to the upper end of Cap à la Roche channel, a distance of 107½ miles from Montreal. The anchorage basin in Lake St. Peter has also been completed.

As a portion of the channel is finished it is thoroughly swept with the testing-scow, and if it proves clear, it is immediately opened for navigation.

During the summer of 1911, most of the Cap Charles channel widening was completed to 450 feet. The red buoys were moved 150 feet north to give the increased width.

The length of the 30 foot channel actually completed at the close of navigation, season 1911, equals 60.60 statute miles. Total length requiring dredging being 63.35 miles, there remaining 2.75 miles yet to be done.

Cap à la Roche will probably take about two more years to complete, while the remainder to Quebec should be completed in about one year longer.

The project of the work below Quebec, had in view a 30-foot channel at low tide at St. Thomas Flats and at Beaujeau Bank. The Beaujeau Bank channel was completed in 1910 to a depth of 30 feet at extreme low tide, and to 1,000 feet in width. The St. Thomas channel was completed to a depth of 30 feet at extreme low tide, and to a width of 1,000 feet, at the end of the season of 1911. This channel will be opened for navigation early next season.

Some progress was made on the 35-foot channel between Montreal and Quebec, as will be seen in the table found in another part of this report. A distance of 6.97 miles has been completed up to the end of season of navigation of 1911.

With the additional plant which is expected to be in readiness soon, better progress will be made.

During the season the usual sweeping of the channel was done and no obstruction of any serious nature was found.

The St. Jean des Chaillons semaphore which indicates the depth of water in the dredged channel at Cap à la Roche was put in operation on May 10, and the other at St. Nicholas showing the depth over the undredged St. Augustin bar on May 14.

A good start was made on the north channel below Quebec, with the two dredges, *Galveston* and *Beaujeu*. It has been decided to deepen this channel to 35 feet at extreme low tide, with a width of 1,000 feet.

Good progress has also been made on the channel approach to the Floating Dock basin, Montreal harbour, but owing to the material being found more difficult to remove than was anticipated, it will take all of another season to complete it.

The total cost from 1851 to the close of the fiscal year, of the ship channel, including plant, shops, surveys, &c., is as follows:—

Dredging.....	\$ 8,947,029 83
Plant, shops, surveys, &c.....	5,577,525 68

Total \$14,524,555 51

The number of cubic yards dredged amounted to 78,231,531, the material varying from very hard shale rock to soft blue clay.

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Year.	AVERAGE DEPTH FOR EACH MONTH. IN THE 27½ FOOT CHANNEL. (27½ feet at Ordinary Low Water.)							FROM SOREL GAUGE DURING EACH YEAR MAY TO NOVEMBER.	
	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	High est.	Lowest.
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.
1890.....	35 6	35 3	31 9	30 6	30 9	29 9	30 6	37 0	29 0
1891.....	34 6	31 3	29 9	29 9	30 0	28 3	28 3	36 9	27 3
1892.....	31 0	31 9	31 6	30 6	28 9	28 3	28 3	33 6	27 3
1893.....	36 0	34 3	30 9	29 9	29 6	28 6	28 0	37 6	27 6
1894.....	34 6	31 9	31 0	29 2	28 3	28 9	29 0	36 0	27 7
1895.....	33 3	31 3	28 3	28 3	27 6	26 9	26 9	34 6	25 10
1896.....	33 6	30 6	28 9	28 0	27 6	27 9	29 0	37 0	27 4
1897.....	35 6	32 6	30 3	29 3	28 0	27 0	27 6	37 0	26 5
1898.....	31 6	30 9	29 8	28 2	28 2	28 3	28 6	32 1	26 9
1899.....	36 2	31 9	30 3	28 6	27 6	28 0	27 9	37 9	26 9
1900.....	33 6	30 9	30 6	29 6	28 1	28 9	29 2	35 9	27 4
1901.....	34 3	31 10	29 2	28 3	27 7	27 4	27 3	36 3	26 6
1902.....	32 2	32 2	32 2	29 4	28 1	28 1	29 0	34 1	27 6
1903.....	33 0	30 11	30 5	29 5	28 4	29 0	27 11	32 8	26 11
1904.....	36 3	34 5	30 9	29 5	29 5	30 4	29 3	37 4	28 1
1905.....	31 10	30 8	29 7	29 0	28 0	28 5	28 1	33 6	27 1
1906.....	32 4	31 5	29 3	27 11	27 3	27 4	27 6	33 3	26 9

	AVERAGE DEPTH FOR EACH MONTH IN THE 30 FOOT CHANNEL (30 feet at extreme Low Water of 1897.)							Highest.	Lowest.
	May.	June.	July.	Aug.	Sept.	Oct.	Nov.		
	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.		
1907.....	37 1	35 9	34 3	32 10	32 4	32 9	33 7	38 3	31 10
1908.....	41 5	37 10	33 10	32 10	32 0	31 0	30 6	42 4	30 0
1909.....	40 6	37 6	33 10	33 2	32 7	32 4	31 6	42 7	30 11
1910.....	35 7	34 5	32 3	31 7	31 6	31 6	31 7	37 1	30 7
1911.....	36 6	34 6	32 1	31 3	30 9	30 2	30 3	38 1	29 4

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COST OF SHIP CHANNEL TO DATE.

TABLE showing the total cost of the dredging and plant and the quantities dredged to March 31, 1912.

	Cost of Dredging.	Expenditure for Plant, Shops, Surveys, &c.	Quantities Dredged.
	\$ cts.	\$ cts.	Cubic Yards.
MONTREAL HARBOUR COMMISSIONERS, 1851 to 1888.			
Dredging Montreal to Cap à la Roche to 27½ feet at O.L.W. and from Cap à la Roche to Quebec to 27½ feet at half tide.....	3,402,494 35	534,809 65	19,865,693
DEPARTMENT OF PUBLIC WORKS.			
Dredging consisting of widening and cleaning up of channel, deepening Cap à la Roche to Cap Charles to 27½ feet at O.L.W. and dredging at Grondines Lotbiniere and Ste. Croix, 1889 to June 30, 1899....	829,583 08	486,971 79	3,558,733
PROJECT OF 1899.			
Dredging channel between Montreal and Quebec to 30 feet at lowest water of 1897, also widening to a minimum width of 450 feet and straightening.			
Fiscal year 1899-1900.....	100,191 01	265,270 78	1,107,894
" 1900-1901.....	136,680 83	287,040 04	2,479,385
" 1901-1902.....	185,429 80	479,731 47	3,098,350
" 1902-1903.....	255,776 55	277,703 50	6,544,605
" 1903-1904.....	276,958 59	308,765 44	4,619,260
DEPARTMENT OF MARINE AND FISHERIES.			
This includes the work below Quebec.			
Fiscal year 1904-1905.....	311,087 93	277,225 69	2,716,220
" 1905-1906.....	431,768 30	317,327 37	4,047,530
" 1906-1907 (July 1, '06 to March 31, '07)....	302,677 37	275,003 61	3,001,010
" 1907-1908.....	478,209 66	417,390 22	4,831,875
" 1908-1909.....	497,686 03	340,861 86	5,896,737
" 1909-1910.....	572,950 71	321,375 80	6,354,285
" 1910-1911.....	576,838 02	488,248 88	5,600,050
" 1911-1912.....	588,697 60	499,799 58	4,509,904
	8,947,029 83	5,577,525 68	78,231,531

DREDGES.

Elevator Dredge Laval (No. 1).—This is the oldest dredge in the ship channel fleet. The hull is of wood, constructed in Ottawa in 1894. The buckets are made of cast steel for work in rock and other hard material.

During the winter of 1911, some of the buckets were repaired, and a new lower tumbler put in. The dredge was thoroughly overhauled and put into good condition for the next season's work.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 1 left Sorel on May 1, and was taken up to Montreal and laid out on the channel approach to the floating dock, Maisonneuve, where she worked till August 29. The material dredged being hard-pan and stones.

From August 30 to September 10, inclusive, this dredge was undergoing repairs. A new tumbler, new buckets and a new bow wire were put in.

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The repairs having been completed, *No. 1* was laid out in the ship channel abreast of St. Helen's island on September 11. She continued working there, widening and deepening the channel to 30 feet E.L.W. until November 25, when she was brought to Sorel to go into winter quarters.

The material being sand and clay with some boulders.

No. 1 was at work for a total of 177 days, and her machinery was in active operation 66 per cent of the full working time.

The total number of cubic yards excavated amounted to 242,800, at a total cost of \$52,904.31, or $21\frac{7}{100}$ cents per cubic yard.

Elevator Dredge Laurier (No. 2.)—The hull of this dredge is of wood having been constructed at the government shipyard at Sorel, in 1897. *No. 2* is equipped with a set of cast steel buckets, especially designed for rock and other hard material.

During the winter of 1911, the buckets and step of the 'A' frame were repaired and a new $1\frac{1}{2}$ -inch cable was issued to this dredge. A general overhauling was given to the machinery and boilers, &c.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 2 left Sorel on May 1, and was taken up to Varennes curve, where she was laid out to deepen the channel to 35 feet at low water of 1897, and also to it, the material being clay. She continued working till May 26, when she was taken to Sorel, and remained there till May 29 undergoing repairs. The conditions at Cap à la Roche being now such that this dredge could be worked to advantage, she was taken down from Sorel on May 29 and set to work at Cap à la Roche curve, where she remained until November 14. The material dredged being shale rock.

On November 14, she was moved up to Varennes curve and worked there widening and deepening the channel to 35 feet at E.L.W. of 1897, till November 25, when she returned to Sorel to go into winter quarters.

In a total of 177 days during which *No. 2* was at work, her machinery was in actual operation 65 per cent of the full working time.

The total number of cubic yards dredged amounted to 199,400 at a cost of \$51,137.36 or $25\frac{6}{100}$ cents per cubic yard.

Elevator Dredge Aberdeen (No. 3.)—The hull of this dredge is of steel, the complete vessel having been constructed at the Sorel shipyard in 1900. The buckets are of cast steel for work in hard material.

During the winter of 1911, repairs were made to her buckets, shoot, the wood work generally, search light rheostat, to main engines and stern and bow winches, as well as having the boilers repaired. A new upper tumbler was installed during the winter.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 3 left Sorel on May 1, and was taken up to Varennes curve, where she was laid out to deepen the channel to 35 feet at low water of 1897, and also to widen it, the material being clay.

The dredge continued working at this place till the water was sufficiently low to allow of her working to advantage at Cap Charles, and on June 2, she was taken down and laid out on June 3 at Cap Charles curve, where she left off the previous season. Work was carried on here until July 21, the material excavated being shale rock.

On this date, July 21, dredge *No. 3* was moved to Grande Pointe shoal, and worked there dredging sand and stones, and finished the cut on August 10.

She was then moved to Grondines and worked there till September 1, *No. 3* was moved back to Cap Charles where she remained till November 8, dredging shale rock which had to be broken up by rock cutter.

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From November 8 till November 25 she was again working at Varennes curve, and on the later date returned to Sorel to go into winter quarters.

The possible working time for dredge No. 3 was 177 days, and she was in actual operation 62 per cent of that time.

The total number of cubic yards removed amounted to 229,500 at a cost of \$48,784.43, or 21²⁵/₁₀₀ cents per cubic yard.

Elevator Dredge Minto (No. 4).—This dredge is of the same type and design as No. 3, and was constructed at the Sorel shipyard in 1900. No. 4 is also provided with cast steel buckets for dredging in rock, and other hard material.

During the winter of 1911, dredge No. 4 was given a good general overhauling and the machinery put into good condition for the next season.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911 were as follows:—

Dredge No. 4 began the season earlier than the other dredges as she was put to work on April 24 dredging out a berth in front of the wharf at the Sorel shipyard.

On May 4 this work was completed and she was moved up to Varennes curve, where she remained until May 31 dredging the channel to 35 feet at L.W. of 1897 and also widening it, the material removed being clay.

By May 31 the water in the tidal reaches of the river being low enough to allow operating this dredge to advantage, she was moved down and laid out at Cap à la Roche curve where she worked excavating shale rock and hard-pan until November 16.

A serious accident occurred to this dredge on July 17, when the buckets came completely off the frame in the middle of the channel. The operation of lifting them was very slow and tedious, as they had to be lifted in short lengths with a stone lifter. Six days were required to do the work, from July 17 to July 22, inclusive.

Dredge No. 4 was moved up to Ste. Anne Traverse on November 16, and worked there till November 27, deepening the channel to 35 feet at E.L.W., the dredged material being clay. She was then brought to Sorel to go into winter quarters.

The number of days which this dredge was in operation was 184, and the percentage of time of actual work, 58.

The total number of cubic yards removed amounted to 238,050, at a cost of \$50,677.07, or 21³⁸/₁₀₀ cents per cubic yard.

Elevator Dredge Lafontaine (No. 5).—This dredge was also constructed at the Sorel shipyard, and was completed in 1901. The hull is of wood. She is fitted out with cast steel buckets for rock.

During the winter of 1911, the sides of the well of the dredge were strengthened by putting in a steel truss on each side. She was also given a thorough overhauling and all necessary repairs were made to put her in good condition for the next season's work.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911 were as follows:—

Dredge No. 5 left Sorel on May 1, was taken up to Varennes curve to deepen the channel to 35 feet and widen it, the material being clay.

On May 22, the buckets of this dredge came off the frame and it was not until May 25 that they were replaced and properly repaired. Work was carried on at Varennes curve until June 10, when this dredge was removed to Cap à la Roche curve, the water being low enough to allow of her being worked advantageously.

From June 10 to October 12 she was in operation at Cap à la Roche curve, the material dredged being shale rock.

On October 12 she was moved down to Cap Charles channel and remained there, excavating hard-pan and stones until November 13, when she was once more moved up to Varennes curve, where she worked till November 25, when she was brought down to Sorel to go into winter quarters.

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The working time of dredge No. 5 was 177 days. She was in actual operation 63 per cent of the full working time.

The total number of cubic yards removed amounted to 249,600, at a total cost of \$57,537.34, or 23 $\frac{5}{100}$ cents per cubic yard.

Elevator Dredge Baldwin (No. 6).—This dredge was constructed at the Sorel shipyard in 1902, the hull being of wood. No. 6 is provided with large built up buckets for working in soft material, but with sufficient teeth to enable the dredge to work in hard clay, &c.

During the winter of 1911 this dredge was thoroughly overhauled and put in good condition for the next season's work. Ten buckets were replaced by new ones and the others repaired.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 6 left Sorel on May 1, and was taken up and laid out at the approach to the floating dock, Montreal, where she worked till June 30, the material dredged being hard-pan and stones.

On June 30 she was removed to the White Buoy curve, Lake St. Peter, to clean up several lumps that had been found by the testing scow. These lumps were removed and at the same time the channel was dredged to 35 feet at low water of 1897, the material being clay.

When the work at White Buoy curve was finished on July 19, No. 6 was taken down to Champlain to clean up sand bars that had been formed in the channel. She worked there steadily till October 12, when an accident occurred to her upper tumbler. The dredge had to be taken to Sorel to have this repaired and it was not till October 20 that the repairs were completed; the dredge then returned to Champlain channel. Operations were continued where they had been left off until the sand bars had been cleaned up on November 6.

On this date, the dredge was taken up to Ste Anne Traverse, where she worked till November 27 deepening the channel to 35 feet at E.L.W. of 1897, the material being clay. She was then brought to Sorel for the winter.

In a total of 178 days during which this dredge was at work her machinery was in active operation 66 per cent of the full working time.

The total number of cubic yards removed amounted to 419,180, at a cost of \$53,694.60, or 12 $\frac{80}{100}$ cents per cubic yard.

Hydraulic Dredge, J. Israel Tarte (No. 7).—The hull of this dredge is of steel of the same type and general design as the steel hulls of the elevator dredges. She was constructed in 1902 by the Polson Iron Works Company of Toronto, Canada.

During the winter and spring of 1911, many changes, repairs and improvements were made to this dredge.

The centrifugal sand suction pump was relined with cast steel. Important improvements were also made to the set of four boilers. Eleven new corrugated furnaces were put in. Howden's system of forced draught was installed, and the machinery was given a general overhauling. It was not till June 11 that all these repairs and alterations were completed and the dredge was ready to begin the season's operations.

Much time was lost by this dredge owing to want of steam, this was partly due to inferior quality of coal, but principally on account of poor class of firemen whose services were very unsatisfactory. Owing to the great number of large works under construction throughout the country, the best class of men preferred to work on land as they could obtain very high wages.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

On June 12, dredge No. 7 left Sorel for Lake St. Peter and was laid out near the upper end of curve No. 2 to deepen the channel to 35 feet at L.W., 1897. This dredge

worked up stream from this point until November 20, when the head of her cut was a short distance above the lower end of curve No. 7. All the channel between these two points being completed to 35 feet, the material dredged was stiff clay and some sand.

In a total number of 135 days, during which this dredge was at work, her machinery was in operation for 42 per cent of the time.

The number of cubic yards removed amounted to 1,328,324, at a total cost of \$99,295.72, or 7 $\frac{7}{100}$ cents per cubic yard.

Dipper Dredge (No. 10.)—This dredge was constructed at the Sorel shipyard and completed in 1910. The hull is of steel. A general overhauling was given to her machinery in Montreal where she wintered.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 10 began work on the channel approach to the floating dock basin at Montreal on May 5, and worked there all season till November 27, when she went into winter quarters, the material dredged being hard-pan and stones.

On June 29 the dipper of this dredge was broken. A new dipper had to be brought up from Sorel, and on July 5 the new one was fitted and the dredge was able to commence work again.

During the season of 1911, out of a possible number of 174 days, the dredge was in actual operation 69 per cent of that time.

The total quantity of cubic yards removed, amounted to 347,600, at a cost of \$38,215.47, or 10 $\frac{9}{100}$ cents per cubic yard.

Dipper Dredge (No. 11.)—Steel hull. This dredge was constructed at the Sorel shipyard and completed in 1911. She was designed by Mr. John Kennedy, consulting engineer for the Montreal harbour commissioners.

The following are her dimensions:—

	Feet.
Length moulded..	132.5
Breadth moulded..	42
Depth at bow..	11.8
Depth at stern..	13.5
Length of spuds..	74

Main engines, 2 compound, 16 and 30 x 22 inches.

Swinging engines, 14 x 14 inches.

Capstan engines, 10 x 14 inches.

The capacity of her bucket for rock is 9 cubic yards, and for soft material, 11 cubic yards.

The pull on the bucket hoisting rope = 180,000 lbs.

The dredge is able to work to a depth of 50 feet. She is equipped with electric light. The steam for the machinery is provided by one marine boiler 12 feet in diameter by 10 feet in length, with two Morrison furnaces, the boiler having a working pressure of 160 lbs. per square inch.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 11 was first set to work at Sorel excavating foundation seat for the new shipyard crane. She was employed there from August 25 until September 5. On September 6 she was taken to Montreal and laid out on the channel approach to the floating dock basin where she worked till October 10, when a serious accident occurred to the boiler which made it necessary that the dredge should be taken to Sorel.

The repairs were finished and the boiler in good order by October 30, and on the following day, October 31, she was taken back to Montreal, where she worked on the channel approach until November 15, *No. 11* broke her dipper. This being repaired,

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the dredge began work again on November 20, and worked until November 23, when another accident occurred. The shackle connecting the hoisting wire to the bucket broke and the dipper arm went to the bottom. In lifting it, the chain broke and the dipper arm in falling smashed one end of a dumping scow which filled and sank. The dredge was engaged for the balance of the season helping to raise the sunken scow. She returned to Sorel to go into winter quarters on December 1.

During the season of 1911, out of a possible number of 60 days, the dredge was in actual operation 49 per cent of that time. The total number of cubic yards removed amounted to 81,900, at a cost of \$22,088.14, or 26⁹⁹/₁₀₀ cents per cubic yard.

The total number of cubic yards removed by the dredging fleet in the ship channel between Montreal and Quebec, during the fiscal year ending March 31, 1912, amounted to 3,336,354, at a total cost of \$474,334.44, or 14²⁷/₁₀₀ cents per cubic yard.

Hopper Hydraulic Dredge Beaujeu (No. 8).—Steel hull, twin screw. This dredge was built at Sorel shipyard in 1906.

During the winter of 1911, this dredge received a thorough overhauling and slight alterations and improvements were made.

The details of the operations of this dredge for the fiscal year beginning April 1, 1911, were as follows:—

Dredge No. 8 left Sorel on May 8 for Quebec, and on May 11 went into dry dock, where she remained till May 17, being scraped, painted and having the stern bearings repaired.

She left Quebec on May 18, arriving at St. Thomas bank the same day, and began working where she had left off the previous season. Work was carried on steadily, and on October 21, the cut through St. Thomas bank was completed to 30 feet at low tide. The material dredged was clay and stones. A few lumps still remain to be cleaned up near the head of Crane island. These will be taken out as early as possible next season.

On October 23 the *Beaujeu* crossed to the north channel and began work in the north channel traverse, west sand, the material to be dredged there consists of sand and gravel which can be handled very advantageously by this dredge. Her average for an 1,800 yard load of this material was about 50 minutes actual pumping.

She stopped work in the north channel on November 23, and proceeded to Sorel to go into winter quarters.

The working time of *No. 8* was from daylight to dark and the dredge was kept in operation 71 per cent of the time.

During the season, the *Beaujeu* worked 163 days, and made 381 loads, which amounted to 665,250 cubic yards, at a total cost of \$59,364.97, or 8⁹²/₁₀₀ cents per cubic yard.

Suction Hopper Dredge Galveston (No. 9).—Steel hull, twin screw. This dredge was constructed in Germany in 1904.

During the winter of 1911, a new dynamo was installed on the *Galveston*, 130 plain and stay boiler tubes were renewed, and she was generally overhauled.

The details of the operations of this dredge for the fiscal year beginning April 12, 1911, were as follows:—

No. 9 left Sorel for St. Michel-de-Bellechasse on May 11, arriving there the next day. She went aground alongside the wharf and made repairs to the turbines.

On May 15 the repairs to the turbines having been completed, she proceeded to Beaujeu channel and worked there till May 18, clearing up lumps. On May 18 she crossed to the north channel and was set to work at the east narrows, the material being sand and gravel.

She was sent to Levis on May 19 to go into dry dock to be scraped, painted and to have repairs made to the doors. This work being completed on May 28, the dredge returned to the east narrows and continued working there until July 31. It was found that the material was very hard, and that the current was very strong and

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variable. This combination of circumstances occasioned several serious breakages so it was thought advisable to try No. 9 in a different place where the conditions were more favourable.

She was moved up to the west sand and worked there with much better results until November 10. On this date she was sent to St. Michel-de-Bellechasse to be beached and prepared to go into winter quarters. She left St. Michel on November 14 and arrived at Sorel November 15 where she was laid up.

No. 9 lost a great deal of time owing to the fact that the suction pipe was twice broken away from the forward hoisting and stay wires, and also because the boiler gave a great deal of trouble and a great many tubes had to be renewed.

During the season, this dredge worked 130½ days. Her hours of operation were from daylight to dark. She was in actual operation 49 per cent of the full working time, and made 362½ loads, amounting to 508,300 cubic yards. The total cost amounted to \$54,998.19, or 108½ cents per cubic yard.

The total number of cubic yards removed by the *Beaujeu* (No. 8) and the *Galveston* (No. 9) below Quebec during the fiscal year ending March 31, 1912, amounted to 1,173,550 at a total cost of \$114,363.16, or 97¼ cents per cubic yard.

The total number of cubic yards removed by the whole of the dredging fleet during the season amounted to 4,509,904, at a total cost of \$588,697.60, or 13½ cents per cubic yard.

PROGRESS of Dredging Operations at date of writing, the close of the season, 1911.
30 FOOT PROJECT.

Locality.	Distance English miles.	Total length requiring dredging.	Length dredged in 1911.	Total length of 30 foot channel dredged.	Length yet to be dredged.
		Miles.	Miles.	Miles.	Miles.
Division 1:— Montreal to Sorel.....	45	22.90	.....	22.90	All completed.
Division 2:— Sorel to Batiscan.....	36	12.45	.....	12.45	All completed.
Division 3:— Lake St. Peter.....	20	18.00	.....	* 0.20 † 17.80	
Division 4:— Batiscan to Quebec.....	59	10.00	0.55	7.25	2.75
Division 5:— Quebec to The Traverse.....	60	6.65	0.65	4.65	2.00
Total.....	220	70.00	1.20	65.25	4.75

*Not widened. †Widened.

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PROGRESS of Dredging Operations at date of writing, the close of the season, 1911.
30 FOOT PROJECT.

LOCALITY.	LENGTH OF DREDGING.		Cubic yards yet required to be done.
	Required.	Done.	
	Miles.	Miles.	
Division 1:—			
Longueuil shoal.....		1.10	
Longue pte. to Pte. aux Trembles (E.H.).....		5.05	
Ile Ste. Therese.....		0.40	
Varenes to cap St. Michel.....		3.00	
Cap St. Michel to Vercheres.....		4.50	
Vercheres Traverse.....		1.10	
Vercheres to Contrecoeur.....		1.70	
Contrecoeur channel.....		6.05	
Total.....		22.90	
Division 2:—			
Sorel to Ile de Grace.....		4.40	
Stone island.....		1.10	
Ile aux Raisins.....		0.25	
Lake St. Peter (see Div. 3).....		0.50	
Port St. Francis.....		0.50	
Three Rivers.....		0.50	
Cap Madeleine to Becancour.....		1.55	
Becancour to Champlain.....		2.25	
Champlain to Pte. Citrouille.....		1.30	
Batture Perron.....		0.60	
Total.....		12.45	
Division 3:—			
Lake St. Peter.....		* 0.20 † 17.80	200,000
Total.....		18.00	200,000
Division 4:—			
Batiscan to Cap Levrard.....		3.00	
Cap a la Roche channel.....	0.50	1.50	400,000
Pouillier Rayer.....	0.15	1.05	125,000
Cap Charles.....	0.30		60,000
Grondines.....	0.60	0.20	220,000
Lotbiniere.....		0.40	
Cap Sante.....		0.20	
Ste. Croix.....	0.60	0.30	150,000
St. Augustin.....	0.60		300,000
Total.....	2.75	7.25	1,255,000
Division 5:—			
Quebec to the Traverse.....	2.00	4.65	550,000
Total.....	2.00	4.65	550,000
Totals.....	4.75	65.25	2,005,000
Cubic yards yet to be done.....			2,005,000
Cubic yards done.....			72,582,537
Total.....			74,587,537

* Not widened.

† Widened.

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PROGRESS of Dredging Operations at date of writing, the close of the season, 1911.
35 FOOT PROJECT.

Locality.	Length dredging required.	Length done.	Cubic Yds. to be dredged.	Cubic Yds. dredged.
Division 1:—				
Longueuil shoal.....	1-88		573,259	
Longue Pte. Traverse.....	0-47		426,222	
Longue Pte. curve.....	1-32		657,546	
Pte. aux Trembles channel.....	3-94	0-20	2,405,432	97,400
Ile Ste. Therese channel.....	1-12		275,100	
Varenes curve.....	2-58	0-50	2,376,577	1,114,050
Cap St. Michel curve.....	0-56		385,000	
Cap St. Michel to Vercheres.....	4-72		2,273,832	
Vercheres Traverse.....	1-24		452,241	
Vercheres to Contrecoeur.....	1-91		857,837	
Contrecoeur channel.....	8-28		5,221,481	
Lanoraie to Sorel.....	0-51		119,466	
Totals, Division 1.....	28-63	0-70	16,023,993	1,211,450
Division 2:—				
Sorel to Ile de Grace.....	4-98	0-50	2,920,710	289,400
Stone island.....	2-11		941,015	
Ile aux Raisins.....	2-09		910,000	
Port St. Francis.....	1-00		632,981	
Three Rivers.....	0-72		410,147	
Cap Madeleine to Becancour.....	2-40		979,118	
Becancour to Champlain.....	1-16		717,500	
Champlain to Pte. Citrouille.....	4-06		1,706,759	
Batture Perron.....	1-23		456,000	
Totals, Division 2.....	19-75	0-50	9,674,230	289,400
Division 3:—				
Lake St. Peter.....	18-32	5-66	10,766,054	3,431,894
Division 4:—				
Batiscan to Cap Levrard.....	4-48		2,386,168	
Cap Levrard channel.....	1-27		781,666	
Cap a la Roche curve.....	2-06		1,836,859	
Cap Charles channel.....	2-04		1,077,416	
Grondines.....	0-83		513,332	
Lotbiniere.....	0-47		321,480	
Cap Sante.....	1-51		655,561	
Ste. Croix.....	1-47		798,518	
St. Augustin.....	1-41		826,207	
Totals, Division 4.....	15-54		9,321,650	
Division 5:—				
Quebec to Goose cape (North channel)—				
Madame reef shoal.....	2-84		2,595,132	
West Sand and East Narrows shoals.....	5-30	0-50	13,568,041	716,250
Totals, Division 5.....	8-14	0-50	16,153,173	716,250
Totals.....	90-38	7-36	61,939,100	5,648,994
Totals remaining to be done.....	83-02		56,290,106	

ABSTRACT of Work of Dredging Fleet during the Fiscal Year ended March 31, 1912.

Dredge.	Locality of Dredging.	Time of service.	Nominal work hours, 24 per day.	Hours actual dredging.	Number of scows filled.	Number of cubic yards dredged (screw measurement.)	Depth of dredging at low water.	Width in feet.	Character of Soil.	Remarks.
		Days.	Hours.				Ft. In.	Feet.		
<i>Laval</i> (No. 1).....	Floating dock approach	107	2,352	1,600 $\frac{1}{2}$	860	185,050	30 0	500 to 750	Hard pan and stones.	Captain R. Matte.
	Montreal harbour.....	70	1,500	864 $\frac{3}{4}$	391	57,750	30 0	500	Sand and stones.	
		177	3,852	2,555 $\frac{1}{2}$	1,251	242,800				
<i>Laurier</i> (No. 2).....	Vareannes curve.....	36	792	519	250	50,000	35 0	550 to 600	Clay.....	Captain C. Gendron.
	Cap a la Roche curve.	141	3,060	1,976 $\frac{1}{2}$	747	149,400	30 0	450 to 550	Shale rock.	
		177	3,852	2,495 $\frac{3}{4}$	997	199,400				
<i>Lady Aberdeen</i> (No. 3)....	Vareannes curve.....	43	948	733 $\frac{1}{2}$	493	98,600	35 0	550 to 600	Clay.....	Captain P. Cardin.
	Cap Charles curve.....	94	2,016	1,173 $\frac{3}{4}$	545 $\frac{1}{2}$	109,100	30 0	600	Shale rock.	
	Grand Point shoal.....	21	468	218	27	5,400	30 0	450 to 600	Clay, sand and stones.	
	Grandines.....	19	420	291 $\frac{1}{4}$	82	16,400	30 0	450	Sand and stones.	
		177	3,852	2,406 $\frac{1}{2}$	1,147 $\frac{1}{2}$	229,500				
<i>Lady Minto</i> (No. 4).....	Sorel harbour.....	9	204	91 $\frac{1}{2}$	44	8,800	25 0	.....	Clay and sand.....	Capt. B. Ladebauche
	Vareannes curve.....	24	528	367 $\frac{3}{4}$	222 $\frac{1}{2}$	44,500	35 0	550 to 600	Clay.	
	Cap a la Roche curve.	25	552	350	161	32,200	30 0	450 to 550	Shale rock and hard pan.	
	Cap Charles channel..	116	2,508	1,423 $\frac{3}{4}$	680 $\frac{3}{4}$	136,150	30 0	450	Shale rock and hard pan.	
	Ste. Anne Traverse....	10	216	110 $\frac{3}{4}$	82	16,400	35 0	450	Clay.	
		184	4,008	2,343 $\frac{3}{4}$	1,190 $\frac{1}{4}$	238,050				

RIVER ST. LAWRENCE SHIP CHANNEL.—Continued.

ABSTRACT of Work of Dredging Fleet during the Fiscal Year ended March 31, 1912—Concluded.

Dredge.	Locality of Dredging.	Time of service.	Nominal work hours, 24 per day.	Hours actual dredging.	Number of scows filled.	Number of cubic yards dredged (scoop measurement.)	Depth of dredging in low water.	Width in feet.	Character of Soil.	Remarks.
		Days.	Hours.				Ft. In.	Feet.		
<i>Lafontaine</i> (No. 5).....	Varenes curve.....	48	1,056	742½	566	121,400	35 0	550 to 600	Clay.....	Captain A. Marcotte.
	Cap a la Roche curve.	103	2,232	1,333	537	107,400	30 0	450 to 550	Shale rock.	
	Cap Charles channel..	26	564	365½	104	20,800	30 0	450	Hard pan and stones.	
		177	3,852	2,441	1,207	249,600				
<i>Balluvin</i> (No. 6).....	Floating dock appr'ch	52	1,152	925	342½	83,080	30 0	500 to 750	Hard pan and stones..	Captain L. Dauphinais
	White Buoy curve, L.	16	348	210½	303	87,000	35 0	450 to 800	Clay.	
	S.P.....	92	1,980	1,195	944	189,800	30 0	450	Sand (cleaning up).	
	Champlain channel....	18	396	232	206	59,300	35 0	450	Clay.	
	Ste. Anne Traverse....	178	3,876	2,562½	1,795½	419,180				
<i>J. Israel Tarte</i> (No. 7)....	No. 2 curve, Lake St. Peter.....	6	132	37½		47,250	35 0	450 to 600	Stiff clay.....	Captain J. S. Michaud.
	No. 1 curve to No. 2 curve, L.S.P.....	117	2,574	1,112½		1,143,412	35 0	450	Stiff clay and some sand.	
	No. 1 curve, Lake St. Peter.....	12	264	95½		137,662	35 0	450 to 600	Stiff clay.	
		135	2,970	1,245½		1,328,324				

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<i>Beaujeu</i> (No. 8)	St. Thomas channel... North channel, West sand.....	133	1,852½	1,351½	249	442,300	30	0	1,000	Clay and stones.....	Captain A. Bourget.
		30	364½	221½	132	222,950	35	0	1,000	Sand and gravel.	
		163	2,217	1,573	381	665,250					
<i>Gabreslon</i> (No. 9)	Beaujeu channel..... North channel, East narrows..... North channel, West sand.....	3	41	32½	10	15,000	30	0	1,200	Sand, clay and gravel.	Captain L. Lemieux.
		35½	565½	284½	89½	133,900	35	0	1,000	Sand and gravel.	
		92	2,016½	958½	262½	359,400	35	0	1,000	Sand and gravel.	
		130½	2,623	1,275½	362½	508,300					
<i>Dipper Dredge</i> (No. 10) ..	Floating dock appr'ch	174	1,955½	1,351	1,774	347,600	30	0	500 to 750	Hard pan and stones..	Captain J. Dunlop.
<i>Dipper Dredge</i> (No. 11) ..	Sorel..... Floating dock appr'ch	10	65	27½	41	7,700	25	0	.....	Sand and clay	Captain R. Bellerose.
		50	509	243	300½	74,200	30	0	500 to 750	Hard pan and stones.	
		60	574	270½	341½	81,900					
						4,509,904					

DETAILS of Dredging, Locality and Cost per Cubic Yard.

CLASSIFICATION of Disbursements for the Fiscal Year ended March 31, 1911.

Vessels.	Fuel.		Wages.		Board.		Stores and materials.		Repairs and labour.		Expenditure: new plant, rebuilding shipyard, &c.		Proportion of gen- eral and office ex- penses, &c.		Expenditure for each vessel.		Floating shop, rock- crusher and stone- lifter service, eleva- tor dredges.		Tug service.		Inspection, towing, sweeping, &c.		Total cost of opera- tions of each dredge during Fiscal Year.		Total expenditure on different appropri- ations.	
	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.	\$	cts.
Dredge Laval (No. 1).....	6,866 78	8,430 09	2,935 27	4,726 11	10,444 82	.....	2,226 66	35,629 73	3,392 91	11,418 74	2,462 93	52,904 31	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Portneuf.....	3,154 39	3,879 81	1,468 59	730 91	1,472 04	.....	713 00	11,418 74	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Laurier (No. 2).....	6,925 38	8,209 75	3,007 91	5,052 73	8,904 38	.....	2,139 88	34,239 93	3,392 92	11,041 57	2,462 94	51,137 36	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Chambly.....	2,996 89	4,417 11	1,758 86	686 01	493 25	.....	689 45	11,041 57	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Lady Aberdeen (No.3)..	6,133 28	8,525 88	3,127 61	3,355 19	9,241 28	.....	2,025 54	32,408 78	3,392 91	10,519 80	2,462 94	48,784 43	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Emilia.....	2,905 89	3,988 92	1,520 80	764 07	683 25	.....	666 87	10,519 80	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Lady Minto (No. 4)....	3,610 39	8,447 29	3,164 90	2,467 29	9,177 16	.....	1,924 92	30,797 34	3,392 91	14,023 88	2,462 94	50,677 07	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Iberalle.....	3,230 89	4,608 75	1,810 76	922 67	2,575 14	.....	875 67	14,023 88	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Lafontaine (No. 5)....	8,792 78	8,262 24	3,053 57	3,448 62	9,299 99	.....	2,190 31	35,047 41	3,392 91	16,633 99	2,462 93	57,537 34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Lac St. Pierre.....	3,860 99	4,377 11	1,721 23	1,219 42	4,416 69	.....	1,038 65	16,633 99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Baldwin (No.6).....	7,690 27	8,519 04	2,950 65	3,117 12	13,220 25	.....	2,366 14	37,863 47	3,392 91	9,975 28	2,462 94	53,694 60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Lanorite.....	2,042 89	3,920 40	1,460 80	629 05	1,299 27	.....	622 87	9,975 28	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge J. Ismet Turie (No.7)	23,808 82	13,813 00	4,405 50	7,235 60	23,432 70	.....	4,819 91	77,160 53	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Lochmère.....	2,299 71	4,760 86	1,841 58	848 07	2,105 82	.....	789 61	12,645 65	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Carmela.....	1,561 71	2,346 10	785 41	758 32	1,136 31	.....	438 75	7,026 60	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Beaujeu (No. 8).....	12,361 14	12,115 98	3,539 07	4,210 97	13,494 05	.....	3,048 38	48,789 59	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dredge Gileston (No. 9).....	11,034 26	10,851 70	3,422 99	2,887 54	13,950 61	.....	2,775 72	44,422 82	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Divided equally between Nos. 8 and 9.	3,492 97	5,327 34	2,004 24	1,111 58	3,275 64	.....	1,013 10	16,224 87	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Jas. Howden.....	3,888 00	6,211 83	1,702 20	3,125 23	6,180 16	.....	1,413 77	22,611 19	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dipper Dredge (No. 10).....	3,370 50	4,511 57	1,738 63	854 68	1,795 40	.....	820 56	13,141 34	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Contrecoeur.....	1,783 29	3,476 39	1,740 34	1,095 77	7,470 27	.....	970 10	15,536 16	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Dipper Dredge (No. 11).....	895 22	1,513 45	444 19	351 30	629 55	.....	255 33	4,089 04	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Varennes.....	2,088 00	2,831 35	1,005 99	625 43	1,359 71	.....	525 51	8,415 99	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Tug Jessie Hume.....	3,327 75	5,841 73	2,422 87	1,464 37	4,453 43	1,166 18	18,676 33
Str. De Lewis.....
Divided equally between Nos. 8 and 9.

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[illegible]

RIVER ST. LAWRENCE SHIP CHANNEL—Continued.

DETAILS of Dredging, Locality and Cost per Cubic Yard.

Dredges.	Total cost of operations of each dredge during Fiscal Year.	Number of days in dredge.	Cost per day, operations of dredges and plant.	Days working, each locality.	Cost of work, each locality.	Total cost of operations of each dredge.	Number of cubic yards dredged in each locality.	Total cubic yards.	Cost per cubic yard, each locality.	Average cost per cubic yard dredge.	Kind of material dredged.	Locality of dredging.
	\$ cts.		\$ cts.		\$ cts.	\$ cts.			Cts.	Cts.		
<i>Leval</i> (No. 1).....	52,904 31	177	298 89	107 70	31,981 70 20,922 61	52,904 31	185,050 57,750	242,800	17 ³⁵ / ₁₀₀ 36 ⁵² / ₁₀₀	21 ⁷³ / ₁₀₀	Hard pan and stones. Sand and stones.	Floating dock approach. Montreal harbour.
<i>Lawrie</i> (No. 2).....	51,137 36	177	288 91	36 141	10,400 82 40,736 54	51,137 36	50,000 149,400	199,400	20 ⁸⁶ / ₁₀₀ 27 ⁶⁵ / ₁₀₀	25 ⁶⁵ / ₁₀₀	Clay. Shale rock.	Varennes curve. Cap à la Roche curve.
<i>Lady Aberdeen</i> (No. 3).....	48,784 43	177	275 61	43 94	11,851 58 25,908 12	48,784 43	98,600 109,100	229,500	12 ³⁵ / ₁₀₀ 23 ⁷⁶ / ₁₀₀	21 ⁷⁶ / ₁₀₀	Clay. Shale rock.	Varennes curve. Cap Charles curve.
<i>Lady Minto</i> (No. 4).....	50,677 07	184	275 41	21 19	5,787 98 5,236 75	50,677 07	5,400 16,400	22,800	107 ¹⁰⁰ / ₁₀₀ 31 ¹⁰⁰ / ₁₀₀	21 ⁷⁶ / ₁₀₀	Clay, sand and stones. Sand and stones.	Grande Pointe shoal. Grandines.
<i>Lafontaine</i> (No. 5).....	57,537 34	177	325 07	9 24	2,478 77 6,610 05	57,537 34	8,800 44,500	238,050	28 ¹⁰⁰ / ₁₀₀ 14 ⁸⁵ / ₁₀₀	21 ⁷⁶ / ₁₀₀	Clay and sand. Clay.	Sorel harbour. Varennes curve.
<i>Baldwin</i> (No. 6).....	53,694 60	178	301 65	25 26	6,885 47 32,200	53,694 60	136,150 16,400	249,600	21 ⁸⁶ / ₁₀₀ 23 ¹⁰⁰ / ₁₀₀	21 ⁷⁶ / ₁₀₀	Shale rock and hard pan Shale rock and hard pan Clay.	Cap à la Roche curve. Cap Charles channel Ste. Anne traverse.
<i>J. Israel Tarte</i> (No. 7).....	99,295 72	135	735 52	48 103	15,603 55 33,482 18	99,295 72	121,400 107,400 20,800	419,180	12 ⁸⁵ / ₁₀₀ 31 ¹⁰⁰ / ₁₀₀ 40 ¹⁰⁰ / ₁₀₀	23 ¹⁰⁰ / ₁₀₀	Clay. Shale rock. Hard pan and stones.	Varennes curve. Cap à la Roche curve. Cap Charles channel.
				52 16	15,686 06 4,826 48		83,080 87,000		18 ⁶⁸ / ₁₀₀ 5 ¹⁰⁰ / ₁₀₀		Hard pan and stones. Clay.	Floating dock approach. White Buoy curve, L. St. P.
				92 18	27,752 27 5,429 79		189,800 59,300		14 ⁸² / ₁₀₀ 9 ¹⁵ / ₁₀₀		Sand (cleaning up) Clay.	Champlain channel. Ste. Anne traverse.
				6 117	4,413 14 86,056 28		47,250 1,143,412		12 ⁵⁰ / ₁₀₀ 9 ¹⁰⁰ / ₁₀₀ 7 ¹⁰⁰ / ₁₀₀		Stiff clay Stiff clay and some sand	Curve No. 2, Lake St. Peter. Curve No. 1 to Curve No. 2, Lake St. Peter.
				12	8,826 30		137,662	1,328,324	6 ⁴¹ / ₁₀₀	7 ⁴⁷ / ₁₀₀	Stiff clay.	Curve No. 1, Lake St. Peter.

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<i>Beaujeu</i> (No. 8).....	59,364 97	163 364 20	133 30	48,438 90 10,926 07 59,364 97	442,300 222,950 665,250	10 ³⁵ / ₁₀₀ 4 ¹⁵ / ₁₀₀ 8 ³⁰ / ₁₀₀	Clay and stones..... Sand and gravel.....	St. Thomas channel. North channel, West Sand.
<i>Gatveston</i> (No. 9).....	54,998 19	130 ¹ / ₂ 421 44	3 35 ¹ / ₂ 92	1,264 32 14,961 19 38,772 68	..... ..... 54,998 19	15,000 133,900 359,400	..... ..... 508,300	8 ⁴⁵ / ₁₀₀ 11 ¹⁵ / ₁₀₀ 10 ¹⁵ / ₁₀₀	..... ..... 10 ⁸² / ₁₀₀	Sand, clay and gravel... Sand and gravel..... Sand and gravel.....	Beaujeu channel. North channel, East narrows. North channel, West Sand.
<i>Dipper Dredge</i> (No. 10)	38,215 47	174 219 63	174	38,215 47	..... 38,215 47	347,600	..... 347,600	10 ³⁵ / ₁₀₀ 10 ¹⁵ / ₁₀₀	..... 10 ¹⁵ / ₁₀₀	Hard pan and stones... Floating dock approach	Floating dock approach
<i>Dipper Dredge</i> (No. 11)	22,088 14	60 368 13	10 50	3,681 36 18,406 78	..... 22,088 14	7,700 74,200	..... 81,900	47 ⁸⁵ / ₁₀₀ 24 ⁸⁰ / ₁₀₀	..... 26 ⁹⁵ / ₁₀₀	Sand and clay..... Hard pan and stones...	Sorel. Floating dock approach.
	588,697 60	1,732 ¹ / ₂	1,732 ¹ / ₂	588,697 60	588,697 60	4,509,904	4,509,904				

DREDGING PLANT.

The following is a description of the dredging plant at the end of the season of 1911 owned and operated by the Department of Marine and Fisheries in connection with the River St. Lawrence ship channel between Montreal and Father Point:—

DREDGES.

The Elevator Dredge 'Laval' (No. 1), wooden hull—

Length over all, 150 feet.
Breadth of beam, 30 feet.
Depth of hold, 14 feet.
Average draught, 11 feet.
Greatest working depth, 42 feet.
Hull built in Ottawa in 1894.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Laurier' (No. 2), wooden hull—

Length over all, 163 feet.
Breadth of beam, 32 feet.
Depth of hold, 14 feet.
Average draught, 10 feet.
Greatest working depth, 45 feet.
Built at Sorel shipyard in 1897.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Lady Aberdeen' (No. 3), steel hull—

Length over all, 148 feet.
Breadth of beam, 32 feet.
Depth of hold, 13 feet.
Average draught, 8.5 feet.
Greatest working depth, 42.5 feet.
Built at Sorel shipyard in 1900.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Lady Minto' (No. 4), steel hull—

Length over all, 148 feet.
Breadth of beam, 32 feet.
Depth of hold, 13 feet.
Average draught, 8.5 feet.
Greatest working depth, 42.5 feet.
Built at Sorel shipyard in 1900.
Steel buckets.
Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

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The Elevator Dredge 'Lafontaine' (No. 5), wooden hull—

Length over all, 168 feet.
 Breadth of beam, 32 feet.
 Depth of hold, 14 feet.
 Average draught, 9 feet.
 Greatest working depth, 45 feet.
 Built at Sorel shipyard in 1901.
 Steel buckets.
 Working capacity per day in hard material, 1,000 to 2,000 cubic yards.

The Elevator Dredge 'Baldwin' (No. 6), wooden hull—

Length over all, 165 feet.
 Breadth of beam, 34 feet.
 Depth of hold, 14 feet.
 Average draught, 8 feet.
 Greatest working depth, 42 feet.
 Built at Sorel shipyard in 1902.
 One cubic yard buckets strengthened for fairly hard material.
 Working capacity per day in medium material, 2,500 to 3,500 cubic yards.

The Hydraulic Dredge 'J. Israel Tarte' (No. 7), steel hull—

Length over all, 160 feet.
 Breadth of beam, 42 feet.
 Depth of hold, 12.5 feet.
 Average draught, 6 feet.
 Length of suction pipe, 80 feet.
 Greatest working depth, 47 feet.
 Built at Polson Iron Works, Toronto, 1902.
 Working capacity per day in soft material, 12,000 to 20,000 cubic yards.

Discharge Pipe and pontoons of Dredge 'J. Israel Tarte' (No. 7)—

Twenty-seven lengths of pipe 36 inches diameter by 100 feet long.
 One length of pipe 36 inches diameter by 35 feet long.
 Twenty-seven pairs of pontoons for floating pipes, 42 ins. diameter by 90 feet long.

Scow No. 24, Pontoon Anchor Scow for Dredge 'No. 7,' wooden hull—

Length over all, 63 feet.
 Breadth of beam, 27 feet.
 Depth of hold, 8 feet.
 Built at Sorel shipyard in 1909.

Scow No. 27, for Dredge 'J. Israel Tarte' (No. 7), wooden hull—

Length over all, 60 feet.
 Breadth of beam, 18 feet.
 Depth of hold, 6 feet.
 Built at Sorel shipyard in 1902.

Suction Hopper Dredge 'Galveston' (No. 9), steel hull, twin screw—

Length over all, 233 feet.
 Breadth of beam, 39 feet.

Depth of hold, 15.5 feet.

Draught when loaded with 1,800 tons, 14 feet 9 inches aft, and 13 feet 1 inch forward.

Greatest working depth, 55 feet.

Built in Germany, 1904.

Two suction pumps, Dutch type, 8.5 feet outside diameter.

Working capacity, 1,350 cubic yards in 45 minutes.

Hopper capacity, 1,500 cubic yards.

The Sea-going, Suction, Hopper Dredge 'Beaujeu' (No. 8), steel hull, twin-screw

Length between perpendiculars, 264 feet.

Breadth of beam, 45 feet.

Depth of hold, 20 feet.

Capacity of hoppers, 2,000 cubic yards in 45 minutes.

Greatest working depth, 65 feet.

Draught when loaded, 15 feet.

Ordinary speed, 9 statute miles.

Built in Sorel shipyard in 1907.

The Dipper Dredge 'No. 10,' steel hull—

Length moulded, 132.5 feet.

Breadth moulded, 42 feet.

Depth at bow, 11.5 feet.

Depth at stern, 9.7 feet.

Length of spuds, 74 feet.

Bucket capacity, one 11 yd. for soft material, one 9 yd. for hard material.

Capable of dredging to 50 feet.

Built at Sorel shipyard in 1910.

The Dipper Dredge 'No. 11,' steel hull—

Length moulded, 132.5 feet.

Breadth moulded, 42 feet.

Depth at bow, 11.8 feet.

Depth at stern, 13.5 feet.

Length of spuds, 74 feet.

Bucket capacity, one 11 yard for soft material, one 9 yard for hard material.

Capable of dredging to 50 feet.

Built at Sorel shipyard in 1911.

TUGS.

The Ice-breaking and Emergency Tug 'Lady Grey,' (steel hull, twin screw)—

Length between perpendiculars, 172 feet.

Length over all, 183 feet 6 inches.

Breadth moulded, 32 feet.

Breadth extreme, 32 feet 3 inches.

Depth moulded, 18 feet.

Draught mean to bottom of flat plate keel (normal) 12 feet.

Draught when ice-breaking, about 13 feet.

Displacement in tons at 12 feet, draught, 1,070.

Mean speed, at 12 feet draught, on 6 runs over measured mile base, 14 knots.

Built by Vickers Sons & Maxim, Ltd., Barrow-in-Furness, England, 1906.

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The Tug 'Frontenac,' (composite hull, twin screw)—

Length over all, 113 feet.
Breadth of beam, 23 feet.
Depth of hold, 10 feet.
Average draught, 9 feet.
Built at Sorel shipyard in 1902.

The Tug 'De Levis' (wooden hull), twin screw—

Length over all, 104 feet.
Breadth of beam, 20 feet.
Depth of hold, 10 feet.
Average draught, 8 feet.
Built at Sorel shipyard in 1902.

The Tug 'James Howden' (wooden hull), twin screw—

Length over all, 100 feet.
Breadth of beam, 21 feet.
Depth of hold, 10 feet.
Average draught, 7.5 feet.
Built at Sorel shipyard in 1903.

The Tug 'Iberville' (steel hull, single)—

Length over all, 90 feet.
Breadth of beam, 18 feet.
Depth of hold, 12 feet.
Average draught, 10 feet.
Built at Sorel shipyard in 1897.

The Tug 'Lac St. Pierre' (wooden hull), twin screw—

Length over all, 100 feet.
Breadth of beam, 21 feet.
Depth of hold, 10 feet.
Average draught, 7.6 feet.
Built at Sorel shipyard in 1901.

The Tug 'Portneuf' (wooden hull, single screw)—

Length over all, 85 feet.
Breadth of beam, 17.3 feet.
Depth of hold, 9.8 feet.
Average draught, 8 feet.
Built at Sorel shipyard, 1905.

The Tug 'Cartier' (wooden hull, single screw)—

Length over all, 84 feet.
Breadth of beam, 18 feet.
Depth of hold, 9.5 feet.
Average draught, 9 feet.
Built at Sorel shipyard, 1893.

The Tug 'Emilia' (wooden hull, single screw)—

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 8 feet.
Built at Sorel shipyard, 1898.

The Tug 'Lanoraie' (wooden hull, single screw)—

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 8 feet.
Built at Sorel shipyard, 1901.

The Tug 'Jessie Hume' (wooden hull, single screw)—

Length over all, 72 feet.
Breadth of beam, 17.2 feet.
Depth of hold, 10 feet.
Average draught, 8.5 feet.
Built at Buffalo, 1878.

The Tug 'Lotbiniere' (wooden hull, twin screw)—

Length over all, 80 feet.
Breadth of beam, 23 feet.
Depth of hold, 8 feet.
Average draught, 7 feet.
Built at Sorel shipyard, 1903.

The Tug 'Carmelia' (wooden hull, single screw)—

Length over all, 84 feet.
Breadth of beam, 17 feet.
Depth of hold, 9 feet.
Average draught, 8 feet.
Purchased in 1903.

The Tug 'Contrecoeur' (wooden hull, twin screw)—

Length over all, 90 feet.
Breadth of beam, 22.7 feet.
Depth of hold, 9 feet.
Average draught, 7 feet.
Built at Sorel shipyard, 1910.

The Tug 'Varennnes' (wooden hull, twin screw)—

Length over all, 96 feet.
Breadth of beam, 22 feet.
Depth of hold, 9 feet.
Average draught, 7 feet.
Built at Sorel shipyard, 1911.

COAL BARGES.

Coal Barge 'No. 1' (wooden hull)—

Length over all, 120 feet.
Breadth of beam, 24 feet.
Depth of hold, 10 feet.
Built in Sorel shipyard, 1898.

Coal Barge 'No. 2' (wooden hull)—

Length over all, 125 feet.
Breadth of beam, 25 feet.
Depth of hold, 11 feet.
Built at Sorel shipyard, 1900.

Coal Barge 'No. 3' (wooden hull)—

Length over all, 98 feet.
Breadth of beam, 28 feet.
Depth of hold, 12 feet.
Built at Sorel shipyard, 1902.

Coal Barge 'No. 4' (wooden hull)—

Length over all, 98 feet.
Breadth of beam, 28 feet.
Depth of hold, 12 feet.
Built at Sorel shipyard, 1903.

Coal Barge 'No. 5' (steel hull)—

Length over all, 127 feet.
Breadth of beam, 32 feet.
Depth of hold, 10 feet.
Built at Sorel shipyard, 1911.

Stone Lifter 'No. 2' (wooden hull)—

Length over all, 80 feet.
Breadth of beam, 25 feet.
Depth of hold, 9.8 feet.
Re-built at Sorel shipyard, 1897.

Stone Lifter 'No. 3' (wooden hull)—

Length over all, 108 feet.
Breadth of beam, 34 feet.
Depth of hold, 14 feet.
Built at Sorel shipyard, 1903.

Stone Lifter 'No. 4' (steel hull), used as a rock-breaker—

Length over all, 100 feet.
Breadth of beam, 32 feet.
Depth of hold, 12 feet.
Weight of ram, 20 tons.
Hoisting winch and ram built by Lobnitz & Co., Renfrew, Scotland.
Hull built at Sorel shipyard, 1910.

3 GEORGE V., A. 1913

Sounding Scow 'No. 1' (wooden hull)—

Length over all, 60 feet.
Breadth of beam, 25 feet.
Depth of hold, 6 feet.
Built at Sorel shipyard, 1898.

Sounding Scow 'No. 2' (wooden hull)—

Length over all, 75 feet.
Breadth of beam, 38 feet.
Depth of hold, 5 feet.
Transferred from Prescott Agency in 1909, re-modelled and improved at Sorel shipyard.

Lodging Scow, (wooden hull)—

Length over all, 60 feet.
Breadth of beam, 18 feet.
Depth of hold, 7 feet.
Built at Sorel shipyard, 1908.

Floating Shop (wooden hull)—

Length over all, 90.3 feet.
Breadth of beam, 25 feet.
Depth of hull, 9 feet.
One forge, 1 scraper, 1 emery wheel, 1 drill, 1 lathe, 1 6 h.p. Foss gasoline engine.
Living quarters for 4.
Built at Sorel shipyard, 1908.

Scow 'No. 28' (winch scow used for fleet in general)—

Length over all, 60 feet.
Breadth of beam, 18 feet.
Depth of hold, 7 feet.
Built at Sorel shipyard, 1908.

Scow 'No. 21' (winch scow used for fleet in general)—

Length over all, 40 feet.
Breadth of beam, 20 feet.
Depth of hold, 6 feet.
Built in Sorel shipyard, 1908.

HOPPER DUMPING SCOWS WITH HYDRAULIC POWER FOR CLOSING GATES.

'No. 1' and 'No. 2' (wooden hulls) with hydraulic power for closing gates—

Length over all, 97 feet.
Breadth of beam, 24.5 feet.
Depth of hold, 9 feet.
Capacity, 200 cubic yards.
Built at Sorel shipyard, 1897.

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'No. 3' and 'No. 4' (wooden hulls), with hydraulic power for closing gates—

Length over all, 90 feet.
Breadth of beam, 18 feet.
Depth of hold, 7 feet.
Capacity, 150 cubic yards.
Built at Sorel shipyard, 1898.

'No. 5,' 'No. 6,' 'No. 7,' and 'No. 8' (wooden hulls) with hydraulic power for closing gates—

Length over all, 97 feet.
Breadth of beam, 24 feet.
Depth of hold, 9 feet.
Capacity, 200 cubic yards.
Built at Sorel shipyard, 1899 and 1901.

'No. 9,' 'No. 10,' 'No. 11,' 'No. 12,' and 'No. 13' (wooden hulls), with hydraulic power for closing gates—

Length over all, 98 feet.
Breadth of beam, 24 feet.
Depth of hold, 9.5 feet.
Capacity, 300 cubic yards.
Built at Sorel shipyard, 2 in 1901, and 3 in 1902.

'No. 14' and 'No. 15' (wooden hulls) with hydraulic power for closing gates—

Length over all, 97 feet.
Breadth of beam, 24.5 feet.
Depth of hold, 9 feet.
Capacity, 300 cubic yards.
Built at Sorel shipyard, 1904-5.

'No. 16' and 'No. 17' (wooden hulls) with hydraulic power for closing gates—

Length over all, 93 feet.
Breadth of beam, 24.5 feet.
Depth of hold, 8 feet.
Capacity, 250 cubic yards.
Built at Sorel shipyard, 1909.

'No. 18' and 'No. 19' (wooden hulls) with hydraulic power for closing gates—

Length over all, 93 feet.
Breadth of beam, 24.5 feet.
Depth of hold, 8 feet.
Capacity, 250 cubic yards.
Built at Sorel shipyard, 1911.

DERRICK SCOW.

Used at Sorel shipyard in connection with construction and repairs to Dredging Fleet—

Length over all, 40 feet.
Breadth of beam, 20 feet.
Depth of hold, 5 feet.
Equipped with a derrick of 5 tons lifting capacity.

APPENDIX No. 4.

SOREL SHIPYARD.

SOREL, August 19, 1912.

A. JOHNSTON, Esq.,
Deputy Minister, Marine and Fisheries,
Ottawa.

SIR,—I have the honour to report on the work done at the Sorel shipyard during the fiscal year ending March 31, 1912, as follows:—

Repairs to vessels of ship channel, construction and maintenance of lights, and Public Works Department, during the fiscal year 1911-12.

DEPARTMENT OF MARINE AND FISHERIES.

Dredges Nos. 1, 2, 3, 5 and 6.—Had the ordinary maintenance repairs to machinery and hull.

Dredge No. 4.—Was hauled out on July 13, 1911, for cleaning, scraping hull under water line, and fitting sea cock screen. Her scow was also put on the ways on July 29, for overhauling and caulking.

All the above dredges had their chain of buckets overhauled and pins and bushes renewed.

Dredge No. 7.—This vessel had ordinary repairs to hull and machinery, also to her hull and deck houses. Howden's forced draft system was installed on her boilers. All of her 100 foot discharge pontoons were hauled out and repaired; at least 60 per cent of their inside wearing plates had to be renewed.

Dredge No. 8.—The usual repairs were made to this dredge, also new arrangements for discharging material dredged, consisting in the installation of two main pipes distributing material to three chutes discharging overboard, and also work had to be done in connection with a steam hopper barge which is being built for this dredge.

This new system will fit the dredge to discharge material inside her own hoppers or in a scow.

Dredge No. 9.—This dredge, besides the ordinary repairs to her hull and machinery, &c., had a new 4-inch ash ejector installed on board.

Dredge No. 10.—During the year, repairs were very light on account of the vessel wintering in Montreal. The captain of this vessel reports that this dredge should take her winter quarters in Sorel, as it would be handier and easier to make repairs with the full equipment of the different departments of the shipyard.

Dredge No. 11.—This vessel had ordinary repairs to her hull and machinery.

All the above dredges were put in good working condition and had a coat of paint to hull and deck houses, before starting operations in the spring.

REPAIRS TO TUGS.

Carmelia (tug).—This vessel had ordinary repairs for operating during the season. She was hauled out on May 27, 1911, and had a new propeller installed.

Chambly (tug) Old 'Cartier'.—Had ordinary repairs to hull and machinery. The hull and deck houses were painted.

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Contrecœur (tug).—This tug had very light repairs to her machinery. The deck was caulked and a coat of paint was given to the hull and deck house. She was hauled on the ways on June 14, 1911, to put on a new propeller.

De Levis (steamer).—Unimportant repairs to equipment and machinery were made to this vessel during the summer. She was hauled out on April 1, 1911, to repair stern tube and shaft. During winter, heavy alterations to bottom of boiler were made and the water pan had to be removed.

Emilia (tug).—Ordinary winter and summer repairs were made to this vessel. She had to be hauled out on May 27, 1911, to take up slack of propeller on shaft and renewing *lignum vitae* bush.

Earl Grey (steamer), ice-breaker.—Had her hull painted.

Frontenac (government steamer).—This boat wintered in Quebec and had ordinary repairs made by the Quebec agency. A new steering gear was bought for her by the Sorel shipyard and was installed on board at Quebec.

Iberville (tug).—The machinery and hull had ordinary repairs during the season. The vessel was hauled out in May, 1911, for repairs to her rudder. She was again put on the ways on October 5, 1911 to receive a new blade to her propeller.

During winter her deck houses were lengthened so as to put the galley on main deck and rooms were built underneath to accommodate the night crew and do away with the lodging scow.

James Howden (tug).—Practically, this vessel had no repairs during the summer, as she worked below Quebec with *Dredge No. 8*. She was hauled on the ways on December 15, 1911, to repair her tail shaft, brackets and rudder.

Jessie Hume (tug).—Had maintenance repairs to hull and machinery. The boiler of this vessel being very old, was condemned by the inspector. Repairs had to be made to this boiler pretty often so as to keep the boat running during the construction of a new boiler.

This tug was hauled out on July 11, 1911, to repair her rudder and propeller key.

Lac St. Pierre (tug).—Had ordinary repairs during winter and summer.

Lanoraie (tug).—Maintenance repairs were made during the season on this boat. She was hauled out on May 11, 1911, for a new propeller, and was put again on the ways on June 12, to install a new propeller. The vessel was hauled out on October 17 for repairing her key and key seats of tail shaft and propeller.

Lady Grey (steamer).—Light repairs were made on this vessel at Three Rivers, where she wintered.

Lambton (steamer).—Drawings were prepared for installation of new ash ejector and one set of furnace doors for the boilers of this vessel.

Lotbiniere (tug).—This tug had ordinary repairs made to her hull and machinery. A larger steering gear 6 inch diameter by 6 inch stroke was also placed on board. She was put on the ways on November 20, 1911, to replace bushes of propeller shaft. One new pair of davits was also installed on board for life saving boat.

Portneuf (tug).—Had ordinary repairs to hull and machinery and was painted during the season. She was hauled out in July, 1911 for repairs to propeller. Was put again on the ways on August 24, to receive a new propeller and bush for rudder. The vessel had to be put on the ways on September 22 to have her rudder repaired.

Varennes (tug).—Had ordinary repairs to hull and machinery. She was hauled out on November 17, 1911, to install a new propeller. She was hauled out again on May 13, 1912, for another propeller.

Vercheres (tug).—This vessel received the ordinary repairs to her hull and machinery. One speaking tube and sound tube from the wheel house to the engine room were also installed on board. Repairs had to be made to her steering gear.

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COAL BARGES.

Coal Barges Nos. 1, 2, 3 and 4.—General repairs were made on these vessels, also slight repairs to winches and derricks.

Coal Barge No. 5.—Practically there were no repairs made on this vessel during the season.

DUMPING SCOWS.

Dumping Scow No. 1.—This vessel had ordinary repairs to her hull and hydraulic machinery. She was hauled out on May 12, 1911, for caulking to her hull, and repairs to hopper doors.

Dumping Scow No. 2.—Had similar repairs to those on *No. 1*. This vessel was hauled on the ways on July 24, 1911, for repairs to hull and to her chain of hopper doors. On the 29th was put again on the ways for repairs to hull and caulking.

Dumping Scows Nos. 3, 4 and 5 received light repairs during the season. *No. 5* was hauled on the ways on June 31, 1911, for caulking her hull.

Dumping Scows Nos. 6, 7 and 8 had only general repairs. *No. 8* was put on the ways on November 7, to repair her hull.

These vessels have a very heavy duty to perform night and day, as all dredged material and stones are dumped from a height of about 8 feet into the hoppers of scows and on account of that they have often to be repaired.

Dumping Scow No. 9.—Ordinary repairs were made on this vessel, which had also to be hauled out on July 10, 1911.

Scow No. 10.—Alterations had to be made to this boat so as to turn it over from a dump scow to a flat scow to work in connection with spoon dredge *No. 10* or *11*. Had to be hauled on the ways on August 31 for caulking of her hull. She was put on the ways on November 30 for wintering, so as to take out her machinery which is to be used on another dumping scow.

Scows Nos. 11, 12, 13 and 14.—Ordinary repairs were made to hull and machinery

Scow No. 15.—Had repairs to hydraulic machinery and hull. This vessel was hauled out on July 31, 1911, to repair her hopper doors.

Scow No. 16.—Was put on the ways June 15, 1911, to have her hoppers repaired. She was hauled out again on September 1 for repairs to hull.

Scows Nos. 17, 18 and 19 had ordinary repairs to hull and hydraulic machinery. *No. 17* was hauled on 26th, 1911, for caulking.

Scow No. 22 (derrick).—Had repairs to hoisting machinery and hull.

Scow No. 24 (pontoon anchor scow).—This scow is used in connection with *Dredge No. 7*. The winches and boilers were overhauled and the ordinary repairs made to her hull.

Winch Scows Nos. 27 and 28.—These scows had ordinary repairs.

STONE LIFTERS.

Stone Lifter No. 2.—No repairs were made on this vessel which is to be discarded, being condemned by the inspector.

Stone Lifter No. 3.—This vessel had ordinary repairs to hull and machinery. She was hauled out on May 19, 1911, for repairs to her well and outside planking to lower water line.

Stone Lifter No. 4.—Had ordinary repairs. During winter, the rock cutting machinery installed on board was changed for a stone-lifting winch, this being the purpose for which the boat was built, the stone cutter arrangement being only temporary, as a trial.

FLOATING MACHINE SHOP.

This scow is used in connection with repairs to the different vessels of the dredging fleet while operating during the season.

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This scow has no steam, the forge machinery being run by gasoline engine. Light repairs were made to the machinery and engine, and practically nothing to the hull, during the winter, when she had a general overhauling and a coat of paint to hull and deck houses.

REPAIRS TO VESSELS OF THE CONSTRUCTION AND MAINTENANCE OF LIGHTS BRANCH, MARINE AND FISHERIES.

Acetylene (barge).—Had very light repairs to machinery and hull.

Adelard (barge).—Maintenance of Light Department. Was hauled on the ways on August 2, 1911, to have her hull caulked and painted.

Alpha (steamer).—Had light repairs to hull and deck. Was hauled on ways for wintering on November 22, 1911. Before launching, her hull was caulked under the water line.

Hosanna (steamer).—Had ordinary repairs to hull and machinery. She was hauled on the ways on September 19, 1911, to renew the foundation bolts of main engine and repair her rudder.

Maisonneuve (steamer).—Was hauled on the ways for wintering on November 30, 1911. During the winter her hull was caulked below the water line.

Lenore (scow).—Was hauled on December 5 for wintering. Iron sheathing was placed on bow and sides, the hull and deck houses were painted during the winter.

Shamrock (barge), buoy service.—Ordinary repairs were made on this vessel. In connection with this service, buoys, chains and anchors were also repaired.

Repairs to the hull of the *Shamrock* were made during summer, also overhauling of machinery. She had to be hauled out on December 5 to renew her stern. The hull and deck houses were painted and some repairs had to be done to her woodwork.

Davis (barge).—Was put on the ways on April 28, 1911, and had repairs to her hull which was also caulked.

Besides the work performed on these various vessels of the Construction and Maintenance of Lights Department, by the shipyard staff, tools and materials were also supplied to these branches of the Department of Marine and Fisheries.

REPAIRS TO VESSELS OF THE DEPARTMENT OF PUBLIC WORKS—TUGS.

Daisy (tug).—Had light repairs to main engine.

Delisle (tug).—Was hauled on the ways on July 18, 1911, for repairing rudder and shaft.

Fast (launch).—Was hauled out June 17, 1911, for renewing key in propeller shaft, and put again on the ways on August 22.

Mina G (tug).—This vessel was put on the ways, June 13, 1911, to repair her propeller shoe. She was hauled out again on September 20, 1911, for a new propeller. Another propeller was installed on board this boat on October 7, 1911.

Montmorency (tug).—Minor repairs were made to this vessel. A new gangway was supplied. Tin sheathing to refrigerator and repairs to rigging.

Ottawa (tug).—This vessel was hauled on the ways, May 20, 1911, to change her high pressure engine for a compound one, the work being done by the department, under the direction of J. W. Weir, the maker. There were also repairs made to the rudder, stern tube and shaft. She had one new deck house and thrust shaft and steam piping installed. The hull and deck houses were painted.

Speedy (steamer).—This steamer had repairs to her dynamo and to the electric bells and her wiring.

DREDGES.

W. S. Fielding (dredge).—Had new wearing plates supplied for her upper tumbler.

St. Louis (dredge).—Minor repairs were made to her machinery and dipper arm.

International (dredge).—Had two steel sheaves supplied for her boom.

NEW CONSTRUCTIONS.

Work was continued on *Construction No. 26* (steel dredge). The hull was completed and the main frame. A frame and bucket ladder frame were installed on board.

Work was begun on engine room and deck houses.

The following machinery was also installed on this dredge: Main hoisting, bow cable and breasting winches. Work on steam pipe was only started at end of fiscal year.

Construction No. 32 (coal barge).—This barge is of steel throughout; will be of 500 tons capacity. During the year the hull was completed and deck houses were erected. Mast and derrick were installed on board, also the hoisting winches.

This vessel was launched early in spring.

Construction No. 33.—This is a steel dumping scow of 200 yards capacity. The wells will be fitted with conical valves worked by hydraulic cylinders.

Work on the hull of this vessel was stopped for a couple of months on account of the pressing work on repairs to vessels of dredging fleet. Since work was started again, the outside plating was completed, the hydraulic cylinders were prepared here, also the valve seats and valves, which only remain to be installed on board.

Constructions No. 34.—Constructions No. 34 are two wooden dumping scows of 250 yards capacity. These vessels were completed and fitted with hydraulic arrangement.

Construction No. 35.—This is a wooden tug 92 ft. long, 22 ft. beam, 6 ft. draft; she was begun in 1910.

The propelling machinery, which was supplied by the St. John Iron Works, was installed on board with all auxiliary machinery, as well as the piping and heating systems. This boat will be completed and put in commission in a month, under the name of *Vareennes*.

Construction 36 and 38.—These constructions are two steel tugs 92 ft. long, 22 ft. beam, 6 ft. draft. They were begun at the same time during winter. Work had to be stopped on *No. 36* so as to push the repairs on vessels of dredging fleet. Work was continued on *No. 38*, and this vessel was completed at the opening of navigation.

The engines for these two boats, which are also furnished by the St. John Iron Works, will be exact counterparts of the engines for *Tug No. 35*.

Construction No. 37.—This is a steel dredge 180 ft. long, 40 ft. wide, 14 ft. deep.

The engines to be compound, direct acting, condensing, designed for a working pressure at engines of 120 lbs. per square inch, and to be capable of developing 450 indicated horse-power with an equivalent speed of buckets from 16 to 17 per minute. To have a chain of 50 dredging buckets of 13 cub. ft. capacity each.

The construction of this vessel was begun early in the year, the hull was completed and launched on May 31, 1912. The A frame, main frame and ladder frame are now ready to be assembled, and the castings for machinery are just beginning to be supplied.

Construction No. 39 (sounding scow).—The hull of this steel vessel was completed and deck houses erected. The machinery was prepared here, but work had to be stopped during winter to keep staff on repairs dredging fleet vessels.

Construction No. 40 (Rock cutter No. 1).—The material for the hull and machinery of this vessel was purchased from Lobnitz & Co., England. During winter the hull was mounted and the machinery erected. Main deck houses were built, railings placed, and other superstructures completed. Between deck quarters were prepared for crews. This vessel will be put in commission at the beginning of June.

MAINTENANCE AND IMPROVEMENTS TO BUILDINGS AND PLANT OF THE SHIPYARD.

The whole of the buildings were maintained and repaired, and kept in good order, so were the waterworks system, the narrow gauge railway, compressed air distribution, electric power lines and internal telephone lines.

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All the following buildings were painted and kept in good order.

REPAIRS TO SHIPYARD BUILDINGS.

Building No. 2 (new boiler shop).—This building was whitewashed inside and the glass was renewed in the windows. The roof had a new coat of paint.

Buildings No. 3.—Old boiler shop *No. 4*, office *No. 5*, machine shop, and *No. 6*, blacksmith shop, all had light ordinary repairs to woodwork.

Building No. 7 (waste shed).—The roof of this building was painted.

Building No. 8 (stables).—Had repairs to floors and roof painted.

Building No. 9 (carpenter shop), *No. 10* (ice house), *No. 11* (manilla rope shed), *No. 12*, (rivet and bolt shed), *No. 13* (steel wire shed), *No. 14* (oil shed), *No. 15* (storage and fleet). All these buildings had their roofs painted.

Building No. 16 (power house).—Light repairs were made to the cement floor.

Building No. 17 (saw mill).—Had repairs to roof and was painted.

Building No. 18.—Asbestos, paint shop and moulding loft. This building had ordinary repairs and roof painted.

Buildings 19, 20 and 21.—The roofs of these buildings were painted.

Building No. 22 (shed for castings).—Had roof painted, repairs to floor and a fence was made around the building.

Buildings Nos. 23, 24 and 25.—Had roof painted only.

Building No. 26.—Main gate house at the entrance of the shipyard, was built during the season for the watchman.

GENERAL.

New fences were also built around the shipyard, where required.

130-Ton Crane.—The construction of a pier for the installation of 130-ton crane was begun. All the piles being driven in place and a thickness of 2 feet of concrete made over them.

Wharfs.—Wharfs and ways have had the ordinary repairs and been kept in good condition.

All the buildings of the shipyard and all machinery were maintained in a good state of efficiency.

A plan of the river front, opposite the shipyard, shows the position of the several vessels for wintering.

The winter roads were made and kept, both in the yard and on the river, along the fleet wintering on the Richelieu. The ice was cut around the vessels, as needed.

The force employed during the fiscal year varied from 741 in November, 1911, to 987 men in March, 1912, and averaged to 826 daily.

The financial statement shows the total amount expended at the Sorel shipyard and ship channel to have been \$1,216,820.03.

I have the honour to be, sir,

Your obedient servant,

W. S. JACKSON,

Superintendent of Shipyard.

SOREL, August 19, 1912.

Construction for Dredging Fleet.		Improvements to Ship Yard.	
Tug <i>Carmelia</i> , new boiler.....	434 63	Boiler shop, new tools and machinery.....	1, 154 34
Tug <i>Jessie Hume</i> , new boiler.....	83 74	Blacksmith shop, new tools and machinery.....	60 00
Re Construction of 400 ft. long pontoons.....	503 88	Cabinet shop, new tools and machinery.....	19 72
Dredge No. 7, new furnaces for boilers.....	14, 379 73	Machine shop, new tools and machinery.....	3, 761 34
Dredge No. 8, new discharging pipe arrangement.....	4, 210 57	Transmission line.....	762 73
Dredge No. 10, night work arrangement.....	1, 637 85	Fencing lumber yard.....	1, 836 07
Rock Cutter No. 1, lifting arrangement.....	780 80	Water works.....	245 58
Coal Barge No. 5, flying rudder.....	42 50	Power house.....	870 83
1-20 Ton Size Lobnitz Rock cutter machinery.....	8, 325 20	Alteration to stores.....	960 32
Estimates for constructions.....	53 04	Flat bottom boat.....	102 82
		New sheer legs.....	24, 589 07
		Building No. 26, alteration.....	1, 220 69
		" 27, ".....	61 13
		" 28, ".....	45 97
		Ship yard general.....	466 49
		Stores and materials.....	.....
Total expenditure on account of River St. Lawrence Ship Channel.....	36, 157 10		
	11, 326 72		
			666, 633 36

APPENDIX No. 5.

STATEMENT of Expenditure of the Department for the fiscal year 1911-12.

Service.	Appropriation.	Expenditure.	Balance.	Overdrawn.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Ocean and River Service—				
Dominion steamers and icebreakers.....	1,000,000 00	943,030 95	56,969 05	
Examination of masters and mates.....	11,400 00	7,435 75	3,964 25	
Rewards for saving life, &c.....	96,000 00	68,754 93	27,245 07	
Investigations into wrecks.....	15,000 00	14,984 38	15 62	
Schools of navigation.....	8,000 00	982 62	7,017 38	
Registration of shipping.....	2,000 00	1,212 23	787 77	
Removal of obstructions in navigable waters.	20,000 00	11,722 96	8,277 04	
Winter mail service.....	7,000 00	6,651 27	348 73	
Cattle inspection.....	5,000 00	3,734 76	1,265 24	
Subsidy for wrecking plants.....	30,000 00	30,000 00		
Patrolling northern waters, &c., Str. <i>Arctic</i> ..	59,000 00	40,048 44	18,951 56	
Unforeseen expenses.....	5,000 00	149 44	4,850 56	
Gratuity to the widow of the late P.B. Toye	200 00	200 00		
	1,258,600 00	1,128,907 73	129,692 27	
Public Works—chargeable to Capital—				
River St. Lawrence ship channel.....	900,000 00	749,284 43	150,715 57	
Dredging plant, Montreal to Father Point....	650,000 00	418,178 13	231,821 87	
Purchase of yard property at Sorel.....	30,000 00		30,000 00	
	1,580,000 00	1,167,462 56	412,537 44	
Lighthouse and Coast Service—				
Agencies, rents and contingencies.....	90,000 00	89,558 97	441 03	
Salaries and allowances to lightkeepers.....	450,000 00	419,644 85	30,355 15	
Maintenance and repairs to lighthouses.....	650,000 00	596,463 40	53,536 60	
Construction of lighthouses, apparatus, &c....	1,000,000 00	762,488 89	237,511 11	
Signal service.....	12,000 00	11,993 75	6 25	
Administration of pilotage.....	35,000 00	34,935 73	64 27	
Maintenance and repairs to wharves.....	5,000 00	4,761 57	238 43	
Breaking ice in Thunder Bay, Lake Superior.	40,000 00	23,295 72	16,704 28	
Telephonic reporting stations, Montreal to				
Quebec.....	24,000 00	22,296 24	1,703 76	
Repairs to the Maritime roads.....	1,000 00	866 97	133 03	
Charter of steamers for Lime Kiln Crossing..	10,000 00		10,000 00	
Pension to retired pilots.....	7,800 00	5,889 95	1,910 05	
Telephones in connection with aids to navigation.....	10,000 00	966 37	9,033 63	
New lighthouse and buoy steamer to replace the <i>Shamrock</i>	175,000 00	16,362 30	158,637 70	
New lighthouse and buoy steamer for the Pacific Coast.....	200,000 00	137,017 65	62,982 35	
Expenses supplying daily bulletin to Lloyd's, London.....	2,500 00		2,500 00	
Compensation to W. H. Gamble, Ernest Gamble and Sam. Hicks.....	300 00	300 00		
Services of Jas. McAllister, placing buoys at Fort William.....	400 00	400 00		
Construction of wharves, buildings, &c., Quebec Agency.....	300,000 00		300,000 00	
Expenses of Mr. Thos. Harling to London re insurance rates for Canadian Shipping.....	1,000 00	1,000 00		
	3,014,000 00	2,128,242 36	885,757 64	

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STATEMENT of Expenditure of the Department for the fiscal year 1911-12.—*Concluded.*

Service.	Appropriation.	Expenditure.	Balance.	Overdrawn.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Scientific institutions—				
Meteorological service.....	143,300 00	145,076 52	.....	1,776 52
Magnetic observatory.....	3,200 00	2,067 54	1,132 46	
Montreal observatory.....	500 00	500 00		
Kingston observatory.....	500 00	500 00		
	147,500 00	148,144 06	1,132 46	1,776 52
Marine hospitals—				
Care of sick seamen and repairs to hospitals..	70,000 00	54,779 27	15,220 73	
Shipwrecked and distressed seamen.....	3,000 00	2,236 84	763 16	
	73,000 00	57,016 11	15,983 89	
Steamboat inspection—				
Salaries and expenses of inspectors.....	54,000 00	45,353 11	8,646 89	
Fisheries—				
Salaries and disbursements of Fishery officers	227,500 00	204,971 21	22,528 79	
Fish breeding establishments.....	322,300 00	235,699 52	86,600 48	
Fishery patrol service.....	95,000 00	92,666 65	2,333 35	
Oyster culture.....	10,000 00	4,544 44	5,455 56	
Cold storage and transportation of fresh fish.	60,000 00	57,348 35	2,651 65	
Dog-fish reduction works.....	60,000 00	35,920 92	24,079 08	
New press and drier for Canso dog-fish works	8,200 00	7,900 00	300 00	
Canadian Fisheries exhibit.....	16,000 00	5,462 06	10,537 94	
New launches for patrol service in Ontario...	30,000 00	603 65	29,396 35	
Building fishways and clearing rivers.....	10,000 00	3,274 74	6,725 26	
Legal and incidental expenses.....	4,000 00	1,443 17	2,556 83	
Georgian Bay laboratory.....	2,000 00	2,017 44	.....	17 44
Marine biological stations.....	15,000 00	14,980 00	20 00	
Fisheries intelligence bureau.....	10,000 00	522 29	9,477 71	
Fishery commissions.....	10,000 00	9,978 38	21 62	
International fishery commission.....	5,000 00	967 16	4,032 84	
Services of customs officers <i>re</i> modus vivendi				
licenses.....	900 00	725 85	174 15	
New launch for the Skeena river.....	4,600 00	4,550 00	50 00	
Five lobster fishery patrol boats.....	25,000 00	281 45	24,718 55	
	915,500 00	683,857 28	231,660 16	17 44
Civil Government salaries.....	215,844 50	200,139 36	15,705 14	
Contingencies.....	36,000 00	35,875 38	124 62	
Fishing bounty.....	160,000 00	159,999 70	0 30	
Recapitulation—				
Ocean and river service.....	1,258,600 00	1,128,907 73	129,692 27	
Public works—chargeable to capital.....	1,580,000 00	1,167,462 56	412,537 44	
Lighthouse and coast service.....	3,014,000 00	2,128,242 36	885,757 64	
Scientific institutions.....	147,500 00	148,144 06	.....	644 06
Marine hospitals.....	73,000 00	57,016 11	15,983 89	
Steamboat inspection.....	54,000 00	45,353 11	8,646 89	
Fisheries.....	915,500 00	683,857 28	231,642 72	
Civil Government.....	215,844 50	200,139 36	15,705 14	
Contingencies.....	36,000 00	35,875 38	124 62	
	7,294,444 50	5,594,997 95	1,700,090 61	644 06
Fishing bounty.....	160,000 00	159,999 70	0 30	

APPENDIX No. 6.

STATEMENT of Revenue of Marine and Fisheries Department for fiscal year ended
March 31, 1912.

Service.	Amount.	Refunds.	Total
	\$ cts.	\$ cts.	\$ cts.
Piers and Wharfs.....	24,722 92	709 00	24,013 92
Harbours.....	747 00		747 00
Dominion Steamers—			
<i>Champlain.</i>			
Freight, \$2,431.33; passengers, \$7,528.08; meals, \$162.10; berths..	10,121 51		
<i>Earl Grey.</i>			
Freight, \$7,957.48; passengers, \$4,249.00; meals, \$155.40; berths,	\$1,147 00		
One from Militia Dept., \$6.00, accounted for from 1910-11, \$1,110.61	14,619 49		
<i>Minto.</i>			
Freight, \$4,958.09; passengers, \$2,964.40; meals, \$135.40; berths,			
\$680.00.—			
Transportation of Militia Officers, \$12.87, accounted for from 1910-11, \$967.24.—			
To be accounted for in 1912-13, \$1,575.....	11,293 70		36,034 70
Decayed pilots fund.....	4,228 39		4,228 39
Steamboat inspection fund.....	4,140 56		4,140 56
Steamboat engineers fees.....	1,756 00		1,756 00
Sick mariners fund.....	60,637 11	179 99	60,457 12
Signal station dues.....	743 00	2 00	741 00
Marine register fees.....	52 58		52 58
Fines and forfeitures—Marine.....	290 00		290 00
Examinations master and mates.....	3,824 50	21 00	3,803 50
Winter Mail Service.....	64 98		64 98
Civil service insurance.....	20 80		20 80
Casual revenue, marine.....	49,961 55	732 68	49,228 87
" fisheries.....	8,735 74		8,735 74
Fines and forfeitures—fisheries.....	12,780 18		12,780 18
Fisheries revenue.....	82,585 01	140 00	82,445 01
Modus vivendi.....	13,785 00		13,785 00
Total.....	305,110 02	1,784 67	303,325 35

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For the Year ended March 31, 1912, Minor Public Works—Revenue—Wharfs, Piers and Harbours.

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Amount.
<i>Ontario.</i>			p.c.	\$ cts.
Blind River.....	W. H. McGauley.....	April 14, 1908..	50	585 37
Bronte.....	J. J. Wilson.....	Oct. 26, 1905..	25	26 25
Bruce Mines.....	W. Fleming.....	April 15, 1902..	50	96 37
Burk's Falls.....	A. J. Collins.....	Feb. 8, 1907..	25	53 18
Chute à Blondeau.....	O. Cousineau.....	May 28, 1909..	40	139 21
Cockburn Island.....	D. J. McLeod.....	June 29, 1910..	50	10 25
Haileybury.....	R. B. Jessop.....	May 8, 1908..	25	561 06
Kingsville.....	W. H. Black.....	Aug. 1, 1902..	25	211 22
L'Orignal.....	E. A. Hall.....	Mar. 23, 1904..	25	168 38
Leamington.....	J. E. Johnson.....	May 11, 1906..	25	220 65
Midland.....	John Yates.....	Oct. 26, 1905..	25	434 05
North Bay.....	Michael LeBoeuf.....	June 30, 1905..	50	78 98
Pelee Island.....	H. Henderson.....	Feb. 2, 1907..	25	279 7
Pembroke.....	T. Anderson.....	April 27, 1906..	\$200 per annum.	100 00
Richard's Landing.....	Jas Burnside.....	Mar. 16, 1912..	50	171 62
Rondeau.....	W. R. Fellows.....	Dec. 17, 1893..	25	40 12
Rosseau.....	A. Montieth.....	Aug. 6, 1908..	50	130 93
Sudder Dock.....	Irvin Quick.....	July 29, 1909..	25	132 26
Sheguinah.....	William Stevens.....	Nov. 8, 1910..	25	107 97
Silver Centre.....	Harry Pichering.....	July 17, 1911..	25	50 00
Southampton.....	Henry Harmer.....	May 24, 1912..	25	256 00
South Lancaster.....	J. D. Perrin.....	May 6, 1907..	25	27 66
Summerstown.....	Alphonse Bonneville.....	May 25, 1910..	25	10 90
Tenby Bay.....	Jas. Bolt.....	Dec. 13, 1909..	25	3 87
Thessalon.....	Jas McAlpine.....	Sept. 15, 1909..	50	173 45
Treadwell.....	Rowland Hughes.....	May 24, 1911..	50	112 42
Wendover.....	H. Lacasse.....	Jan. 14, 1907..	50	36 39
Warton.....	W. Gilbert.....	Nov. 13, 1907..	25	158 83
				4,377 12
<i>Montreal District</i>				
Cedars.....	C. Laboursadiere.....	May 27, 1907..	50	6 25
Coteau du Lac.....	H. Sauve.....	Jan. 10, 1908..	50	10 00
Coteau Landing.....	E. de Chantal.....	Feb. 1, 1909..	25	35 63
East Templeton.....	Albert Laberge.....	Jan. 24, 1911..	25	30 00
Graham.....	Antoine Bertrand.....	Feb. 22, 1911..	25	58 20
Hudson.....	Albert Vipond.....	May 22, 1911..	50	61 80
Ile Perrot, North.....	O. Legault.....	May 30, 1910..	25	46 40
Ile Perrot, South.....	Richard Daoust.....		50	13 24
Knowlton's Landing.....	L. Knowlton.....	Mar. 23, 1910..	25	37 50
Lacolle.....	R. J. Robinson.....	Mar. 8, 1894..	25	4 39
Longueuil.....	E. Denincourt.....	May 15, 1901..	25	6 56
Magog.....	D. Peters.....	June 15, 1906..	50	74 55
Masson.....	Vacant.....			40 00
Peel Head Bay.....	A. N. Ray.....		25	21 24
Pointe Fortune.....	Wm. Brown.....	April 26, 1910..	25	77 04
Pointe à Valois.....	L. Castenguay.....		50	29 75
Port Lewis.....	M. Stalker.....	April 16, 1906..	25	17 50
Rigaud.....	O. Malette.....		50	50 00
St. Anicet.....	S. Dupuis.....	Sept. 14, 1896..	25	17 50
St. Anne de Bellevue.....	M. C. Bezner.....	May 21, 1908..	50	207 80
St. Zotique.....	A. Bissonnette.....	May 7, 1906..	25	23 25
Vaudreuil.....	J. A. Valois.....	April 21, 1910..	25	76 42
				945 02
<i>Quebec District.</i>				
Anse aux Gascons.....	S. Chapados.....	Feb. 16, 1906..	25	56 00
Anse à L'Islet.....	George Molloy.....	June 28, 1909..	25	75 00
Anse St. Jean.....	F. Lavoie.....	May 13, 1905..	\$19 per annum.	54 05
Baie St. Paul.....	Edward Cunningham.....			
	(alias Coude)	Oct. 28, 1905..	\$32 per annum.	133 76
Beauport.....	Placide Langlois.....	Oct. 19, 1909..	50	18 32
Berthier.....	J. Blais.....	Nov. 7, 1905..	50	68 67

3 GEORGE V., A. 1913

FOR the Year ended March 31, 1912, Minor Public Works—Revenue—Wharfs, Piers and Harbours—*Continued.*

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Amount.
<i>Quebec District—Con.</i>			p.c.	\$ cts.
Carleton.....	B. Leclerc.....	June 13, 1905..	50	25 69
Cap. à l'Aigle.....	A. Dufour.....	May 11, 1906..	\$18 per annum.	41 90
Chicoutimi.....	T. Tremblay.....	May 23, 1901..	\$122 per annum.	431 43
Grand River.....	G. Beaudin.....	Nov. 16, 1896..	25	145 29
Grindstone.....	John Ballantyne.....	Dec. 22, 1909..	25	492 76
Ile aux Grues.....	D. Vezina.....	June 13, 1904..	25	0 45
Les Eboulements.....	Thos. Tremblay.....	June 23, 1910..	\$29 per annum.	63 77
L'Islet.....	Under lease.....			25 00
Matane.....	Alexander Pelletier.....	Jan. 20, 1912..	50	155 93
Murray Bay.....	J. Gagnon.....	May 16, 1906..	\$40 per annum.	462 10
New Carisle.....	J. Chisholm.....	April 22, 1902..	25	61 45
Paspébiac.....	J. de Caen.....	Feb. 22, 1908..	50	41 35
Percé.....	E. Bourget.....	April 26, 1910..	40	178 15
Port Daniel.....	F. X. Gagnon.....	Feb. 6, 1907..	\$50 per annum.	29 08
Rimouski.....	U. Lavoie.....	Mar. 27, 1907..	50	153 55
Riviere Blanche.....	A. Quimper.....	Jan. 20, 1912..	50	186 62
Riviere du Loup.....	L. J. Pinze.....	Nov. 7, 1905..	\$146 per annum.	601 54
St. Alphonse de Bagotville.....	F. Fortier.....	April 20, 1909..	\$48 per annum.	155 15
St. Irénée.....	G. Bouchard.....	Feb. 10, 1903..	25	46 09
St. Jean d'Orleans.....	Vacant.....			60 00
St. Jean, Port Joli.....	Under lease.....			50 00
St. Laurent.....	J. Godbout.....	May 11, 1904..	50	30 00
St. Nicholas.....	Under lease.....			25 00
St. Simeon.....	H. Savard.....	May 7, 1908..	25	17 86
St. Thomas de Montmagny.....	L. Dionne.....	Oct. 22, 1896..	25	70 54
Tadoussac.....	A. Gingras.....	May 29, 1906..	\$30 per annum.	125 84
<i>New Brunswick,</i>				4,082 29
Anderson's Hollow.....	Harris T. Copp.....	May 30, 1910..	25	75 47
Black River.....	F. McLeod.....	Sept. 26, 1907..	25	18 45
Campbellton.....	G. E. Asker.....	May 11, 1904..	25	1,734 99
Cape Tormentine.....	M. B. Rielly.....	June 23, 1905..	25	336 65
Caraquet.....	H. Friolet.....	Sept. 11, 1906..	25	182 87
Dalhousie.....	W. S. Smith.....	June 27, 1891..	25	432 42
Gardner's Creek.....	Jas. J. Armstrong.....	Dec. 22, 1909..	25	38 24
Hopewell Cape.....	Edger B. Wilson.....	April 10, 1899..	25	45 87
Moncton.....	Jas. Flannaghan.....	June 16, 1911..	25	94 14
Petit Rocher.....	J. Boudreau.....	Aug. 7, 1907..	25	11 42
St. John.....	E. C. Elkin.....	Nov. 18, 1910..	25 not to exceed. \$1,500 in any calendar year	4,768 43
Shippegan.....	G. J. Henry.....	May 24, 1911..	25	71 45
Tracadie.....	Louis Breau.....	Oct. 12, 1910..	25	4 99
Two Rivers.....	W. Wilbur.....	July 23, 1903..	25	3 30
<i>Nova Scotia.</i>				7,818 69
Arisaig.....	H. R. McAdam.....			12 00
Avonport.....	L. F. Fuller.....		25	9 51
Babin's Cove.....	Alex. Thomas.....	Oct. 20, 1897..	25	22 50
Barrington.....	J. H. Christie.....	Aug. 31, 1896..	25	73 32
Bayfield.....	R. Grant.....	April 23, 1902..	25	28 01
Belliveau Cove.....	S. C. Theriault.....	Nov. 24, 1892..	25	110 73
Black Point.....	J. P. Littlewood.....	Jan. 8, 1904..	25	19 46
Brooklyn.....	J. McLeod.....	Aug. 3, 1904..	25	7 52
Canada Creek.....	H. Dickey.....	Aug. 12, 1899..	25	7 43
Cape Cove.....	Benj. Doucette.....	Feb. 8, 1907..	25	4 69
Centreville.....	A. Ward.....	May 23, 1897..	25	96 92
Church Point.....	L. Belliveau.....	Mar. 20, 1907..	25	65 06
Clark's Harbour.....	J. T. Duncan.....	Jan. 30, 1902..	25	103 13
Deep Brook.....	J. C. W. Ditmars.....	Dec. 2, 1911..	25	11 57
Descousse.....	Andrew Landry.....	Dec. 19, 1911..	25	64 89

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For the Year ended March 31, 1912, Minor Public Works—Revenue—Wharfs, Piers and Harbours—*Continued.*

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Amount.
<i>Nova Scotia—Con.</i>			p.c.	\$ cts.
Digby.....	W. W. Hayden.....	April 20, 1897..	25	2,675 20
Freeport.....	J. Fairfield.....	Mar. 3, 1911..	25	41 90
Granville Centre.....	H. Roney.....	June 6, 1903..	25	72 30
Hall's Harbour.....	T. A. Neville.....	Jan. 8, 1897..	25	54 00
Hampton.....	C. Dunn.....	Dec. 22, 1906..	25	23 85
Horton Landing.....	F. G. Curry.....	April 30, 1898..	25	12 24
Jeddore.....	Enos Baker.....	May 22, 1911..	50	14 43
Jordon Bay.....	J. Fredericks.....	Feb. 20, 1900..	25	14 01
Margaretsville.....	William Early.....	Jan. 15, 1912..	25	99 82
Meteghan Cove.....	M. Robichaud.....	Dec. 7, 1909..	25	6 44
Meteghan River.....	A. Melanson.....	Sept. 26, 1910..	25	65 75
Newellton.....	A. C. Newell.....			53 18
Oak Point.....	Under lease.....			233 33
Ogilvie.....	J. L. Swindle.....	Mar. 4, 1907..	25	5 36
Owl's Head.....	D. Palmer.....	Mar. 22, 1910..	25	27 31
Phinney's Cove.....	Alden Bent.....	Dec. 24, 1907..	25	2 19
Picketts.....	F. Eaton.....	Aug. 2, 1899..	24	54 16
Plympton.....	W. K. Smith.....	Aug. 3, 1890..	25	6 42
Port George.....	O. Douglas.....	June 26, 1900..	25	42 19
Port Hastings.....	Malcolm McFadyen.....	May 10, 1911..	25	19 28
Port Hawkesbury.....	F. McInnis.....	Mar. 20, 1907..	25	302 71
Port Latour.....	C. D. Cook.....	Aug. 20, 1904..	25	20 00
Port Lorne.....	F. Beardsley.....	June 22, 1897..	25	51 75
Port Morien.....	D. F. McAuley.....	Sept. 6, 1910..	25	138 46
Port Mouton.....	Geo. Cook.....	Dec. 28, 1905..	25	0 85
Port Philip.....	H. C. Johnson.....	Sept. 3, 1909..	25	7 42
Port Wade.....	J. D. Apt.....	Sept. 12, 1907..	25	44 57
Poulamon.....	C. N. Pertus.....	Nov. 18, 1911..	25	54 57
Ray's Creek.....	R. W. Ray.....	Jan. 2, 1908..	25	6 58
Sandford.....	A. Shaw.....	May 26, 1903..	25	16 43
Saulnierville.....	J. T. Saulnier.....	Aug. 25, 1888..	25	17 50
Shag Harbour.....	A. Smith.....	Oct. 28, 1909..	25	17 71
Spencer's Island.....	H. E. Grant.....	June 24, 1911..	25	20 17
Tiverton.....	B. Blackford.....	Oct. 17, 1906..	25	49 99
West Arichat.....	H. H. Sampson.....	June 21, 1909..	25	41 03
West Head.....	H. N. Newell.....	Feb. 2, 1910..	25	24 61
West Pubnico.....	C. C. D'Entrement.....	Mar. 28, 1898..	25	18 36
Wolfeville.....	J. L. Franklyn.....		25	28 57
				5,026 18
<i>Prince Edward Island.</i>				
Annandale.....	W. C. Jenkins.....	May 4, 1897..	25	66 49
Bay View.....	J. Harrington.....	Oct. 2, 1885..	25	6 23
Chapel Point.....	R. McCormack.....	Sept. 18, 1885..	25	11 14
Charlottetown.....	T. G. Taylor.....	Agent of Dept.		1,261 71
Crapaud and Victoria.....	E. McKinnon.....	July 7, 1897..	25	231 92
Georgetown.....	R. R. Jenkins.....	Oct. 14, 1892..	25	23 62
Hickey's.....	M. Webster.....	Oct. 20, 1896..	25	21 90
Higgin's Shore.....	G. G. Henry.....			4 20
Keer's Shore.....	Wm. Hodgson.....	June 10, 1895..	25	165 60
Lambert and Stevens.....	W. A. Johnstone.....	May 3, 1900..	25	42 52
Mount Stewart.....	Benjamin Pigott.....	Jan. 17, 1910..	25	32 12
McPherson's Cove.....	J. L. McPherson.....	Nov. 6, 1908..	25	6 04
Murray Harbour, South.....	Fireman Reynolds.....	Nov. 7, 1911..	25	3 75
North Cardigan.....	R. J. Steele.....	May 1, 1901..	25	29 12
Pownall.....	M. M. Hayley.....	Oct. 13, 1896..	25	29 34
Red Point.....	Jas. McKenna.....	April 3, 1900..	25	17 83
Sturgeon Pier.....	N. Randall.....	Dec. 31, 1908..	25	15 68
Tignish.....	A. J. Gaudet.....	Aug. 23, 1898..	25	19 02
Vernon River.....	W. Forbes.....	April 22, 1902..	25	91 24
Wood Island.....	J. Young.....	April 10, 1899..	25	3 81
				2,083 38

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For the Year ended March 31, 1912, Minor Public Works—Revenue—Wharfs, Piers
and Harbours—*Concluded.*

Locality.	Wharfinger.	Date of appointment.	Remuneration allowed.	Amount.
<i>Manitoba.</i>			p. c.	\$ cts.
Selkirk.....	E. Comber.....	Dec. 27, 1904..	25	363 29
<i>British Columbia.</i>				
Ladysmith.....	T. D. Conway.....		25	2 65
Sydney Harbour.....	C. C. Cochrane.....	Nov. 25, 1910..	25	24 41
				27 06

Resumé Wharfage

	\$ cts.
Ontario.....	4,377 12
Montreal District.....	945 02
Quebec District.....	4,082 29
New Brunswick.....	7,818 69
Nova Scotia.....	5,026 18
Prince Edward Island.....	2,083 28
Manitoba.....	363 28
British Columbia.....	27 06
Grand Total.....	24,722 92

Harbour Dues.

St. John's, Que., 1911.....	137 50
St. John's, season 1910.....	185 00
Sorel.....	95 00
Louisburg, N. S.....	8 00
International Pier.....	12 00
Comax, B. C.....	103 00
Vancouver, B. C.....	79 50
Victoria, B. C.....	127 00
	747 00

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STATEMENT of Sick Mariners' Dues collected during the fiscal year ended March 31, 1912.

Name of Port.	Amount.	Name of Port.	Amount.
	\$ cts.		\$ cts.
PROVINCE OF ONTARIO.			
Kingston.....	2 16	Halifax.....	11,214 15
Total.....	2 16	Kentville.....	19 07
PROVINCE OF QUEBEC.		Liverpool.....	126 83
Gaspe.....	84 64	Lockeport.....	6 41
Montreal.....	6,153 13	Lunenburg.....	370 69
Paspébiac.....	163 86	New Glasgow.....	0 35
Percé.....	107 55	North Sydney.....	985 00
Quebec.....	5,209 88	Parrsboro.....	542 36
Rimouski.....	106 72	Pictou.....	230 64
St. Armand.....	4 34	Port Hawkesbury.....	122 30
St. John's.....	1,333 63	Port Hood.....	17 65
Sorel.....	30 20	Shelburne.....	66 84
Three Rivers.....	251 40	Sydney.....	2,900 16
Total.....	13,445 35	Truro.....	3 94
PROVINCE OF NEW BRUNSWICK.		Weymouth.....	141 62
Bathurst.....	324 75	Windsor.....	1,030 97
Campbellton.....	510 72	Yarmouth.....	363 71
Chatham.....	556 82	Total.....	19,055 26
Dalhousie.....	410 70	PROVINCE OF PRINCE EDWARD ISLAND.	
Fredericton.....	33 52	Charlottetown.....	305 84
Moncton.....	237 60	Summerside.....	47 69
Newcastle.....	254 27	Total.....	353 53
Sackville.....	89 07	PROVINCE OF BRITISH COLUMBIA.	
St. Andrews.....	52 78	Nanaimo.....	5,122 38
St. John.....	7,183 35	Prince Rupert.....	652 24
St. Stephen.....	62 09	Vancouver.....	2,869 46
Total.....	9,715 67	Victoria.....	9,421 06
PROVINCE OF NOVA SCOTIA.		Total.....	18,065 14
Amherst.....	204 51	GRAND TOTALS BY PROVINCES.	
Annapolis.....	190 24	Ontario.....	2 16
Antigonish.....	0 70	Quebec.....	13,445 35
Arichat.....	13 99	New Brunswick.....	9,715 67
Baddeck.....	32 85	Nova Scotia.....	19,055 26
Barrington.....	18 36	Prince Edward Island.....	353 53
Bridgewater.....	268 46	British Columbia.....	18,065 14
Canso.....	83 23	Grand Total.....	60,637 11
Digby.....	98 63		
Glace Bay.....	1 60		

3 GEORGE V., A. 1913

STATEMENT of Steamboat Inspection Dues collected for the Fiscal Year ended March 31, 1912.

Name of Port.	Amount.	Name of Port.	Amount.
PROVINCE OF ONTARIO.	\$ cts.		\$ cts.
St. Thomas.....	45 68	PROVINCE OF BRITISH COLUMBIA.	
Windsor.....	138 40	Vancouver.....	712 64
	184 08	Victoria.....	319 36
PROVINCE OF QUEBEC.			1,032 00
Montreal.....	289 44	Ontario.....	184 08
Quebec.....	323 12	Quebec.....	612 56
	612 56	Nova Scotia.....	2,311 92
PROVINCE OF NOVA SCOTIA.		British Columbia.....	1,032 00
Halifax.....	1,814 80	Total.....	4,140 56
Kentville.....	419 12	Engineers' Certificates.....	1,756 00
North Sydney.....	78 00	Grand total.....	5,896 56
	2,311 92		

MARINE REGISTER FEES.

PROVINCE OF ONTARIO.	\$ cts.	PROVINCE OF BRITISH COLUMBIA.	\$ cts.
Ingersoll.....	4 00	Victoria.....	5 00
Ottawa.....	0 60	Total.....	5 00
Pictou.....	0 60	PROVINCE OF PRINCE EDWARD ISLAND.	
Toronto.....	2 80	Charlottetown.....	1 20
Total.....	8 00	Total.....	1 20
PROVINCE OF QUEBEC.		DISTRICT OF YUKON.	
Montreal.....	6 80	Dawson.....	1 00
Paspebiac.....	0 88	Total.....	1 00
Quebec.....	10 44	TOTALS BY PROVINCES.	
Total.....	18 12	Ontario.....	8 00
PROVINCE OF NEW BRUNSWICK.		Quebec.....	18 12
St. Andrews.....	5 17	New Brunswick.....	5 17
Total.....	5 17	Nova Scotia.....	13 29
PROVINCE OF NOVA SCOTIA.		Manitoba.....	0 80
Halifax.....	7 25	British Columbia.....	5 00
Liverpool.....	0 85	Prince Edward Island.....	1 20
Lunenburg.....	4 20	Yukon District.....	1 00
Shelburne.....	0 24	Grand Total.....	52 58
Yarmouth.....	0 75		
Total.....	13 29		
PROVINCE OF MANITOBA.			
Winnipeg.....	0 80		
Total.....	0 80		

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STATEMENT of Receipts from the Lighthouse and Coast Service of Canada for the fiscal year ended March 31, 1912.

Name of Port.	Amount.
	\$ cts.
PROVINCE OF NOVA SCOTIA.	
Halifax.....	743 00
Total.....	743 00

HARBOUR MASTERS.

TABLE showing the names of ports proclaimed under certain Dominion Acts, the provision of which are found in the Canada Shipping Act, Chapter 113, Revised Statutes of Canada, 1906, for the appointment of harbour masters and date of their appointment, the amount which each of their salaries is not to exceed, the amount of fees collected by each of them during the calendar year ended December 31, 1911, and the overplus, if any, paid to the credit of the Receiver General.

PROVINCE OF ONTARIO.

Name of Port.	Harbour Master.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. G.
			\$ cts.	\$ cts.	\$ cts.
Amherstburg.....	M. Barrett.....	Dec. 29, 1906	Nil.	200 00	
Bronte.....	Jas. Wilson.....	Oct. 26, 1905	Nil.	200 00	
Byng Inlet, North.....	Chas. E. Begin.....	Mar. 24, 1908	5 00	200 00	
Collingwood.....	W. F. Tonor.....	Dec. 1, 1908	64 00	300 00	
Depot Harbour.....	Jno. O'Grady.....	April 18, 1910	10 00	200 00	
Fort William.....	Jas. McAllister.....	May 12, 1906	360 50	600 00	
French River.....	E. Barron.....		14 50	200 00	
Goderich.....	Donald McKay.....	April 21, 1908	77 00	300 00	
Little Current.....	Jno. T. May.....	July 19, 1906	Nil.	200 00	
Meaford.....	S. McClain.....	July 16, 1902	Nil.	200 00	
Midland.....	Jno. White.....	July 13, 1897	77 50	300 00	
Owen Sound.....	W. T. Robertson.....	May 29, 1909	92 50	200 00	
Oshawa.....	Wm. T. Heney.....	Aug. 10, 1904	Nil.	300 00	
Parry Sound.....	Basil Taylor.....	April 27, 1909	9 00	200 00	
Penetanguishene.....	Peter Light.....	May 7, 1906	17 00	200 00	
Port Arthur.....	B. Guirard.....	May 21, 1897	202 50	300 00	
Port McNichol.....	Thos. Nottingham.....	May 1, 1911	10 00	200 00	
Port Stanley.....	E. E. Shepherd.....	Jan. 15, 1898	Nil.	200 00	
Rondeau.....	W. R. Fellows.....	Dec. 17, 1888	12 50	100 00	
Southampton.....	W. H. Johnston.....	Oct. — 1882	25 50	100 00	
Sarnia.....	Rollit McAdam.....	May 3, 1886	Nil.	300 00	
Trenton.....	Robt. Cummings.....	Mar. 21, 1911	45 50	200 00	

PROVINCE OF QUEBEC.

Amherst, M.I.....	Jno. Cassidy.....	Sept. 2, 1878	6 00	200 00
Anse aux Gascons.....	J. Mouront.....	June 28, 1905	Nil.	100 00
Bersimis.....	T. Thibault.....	Dec. 13, 1905	Nil.	200 00
Bio.....	T. Bellavance.....	April 25, 1912	Nil.	200 00
Bonaventure.....	A. Bourque.....	June 3, 1905	5 50	100 00
Carleton.....	B. Leclerc.....	May 15, 1905	Nil.	200 00

TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*PROVINCE OF QUEBEC—*Continued.*

Name of Port.	Harbour Master.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. G.
			\$ cts.	\$ cts.	\$ cts.
Cape Cove.....	J. Scott.....	July 15, 1908	Nil.	200 00	
Caplin.....	T. Bourdages.....	Mar. 20, 1907	Nil.	100 00	
Chicoutimi.....	A. Sturton.....	June 8, 1886	Nil.	200 00	
Escoumains.....	C. J. Belanger, Jr.....	Oct. 27, 1906	Nil.	200 00	
Grand Entry.....	Andre Cyr.....	July 10, 1907	5 00	200 00	
Grand River.....	C. Brandin.....	April 8, 1900	11 00	100 00	
Gaspé.....	F. G. Eden.....	April 3, 1889	Nil.	500 00	
House Harbour.....	G. Lafrance.....	Dec. 16, 1896	27 00	200 00	
Maria.....	Arthur Cyr.....	Mar. 29, 1905	Nil.	100 00	
Matane.....	L. J. Lavasseur.....	Dec. 12, 1896	55 00	200 00	
Malbaie.....	Patria Lawrence.....		17 00	200 00	
Metis.....	J. W. Ferguson.....	May 10, 1906	Nil.	200 00	
New Carlisle.....	J. Chisholme.....	April 22, 1902	1 00	200 00	
New Richmond.....	F. X. Cormier.....	April 15, 1902	38 00	200 00	
Nouvelle.....	J. Cassey.....	Jan. 3, 1903	Nil.	200 00	
Oak Bay.....	T. Harper.....	July 12, 1904	35 00	200 00	
Paspebiac.....	W. L. Kempffer.....	Sept. 21, 1900	31 00	150 00	
Percé.....	E. Donahue.....	Oct. 10, 1903	10 00	100 00	
Port Daniel.....	B. Langlois.....	Feb. 26, 1907	8 80	200 00	
Rimouski.....	A. P. S. Laurent.....	May 21, 1896	92 50	200 00	
Riviere du Loup.....	F. E. Gilbert.....	Oct. 5, 1902	55 00	100 00	
St. Godfrey.....	Jacques Grenier.....	June 5, 1905	5 00	100 00	
Montmagny.....	Louis Dionne.....	Oct. 22, 1896	40 00	200 00	
St. Johns, 1912.....	G. H. Farrar.....	Mar. 20, 1897	737 50	600 00	137 50
St. Johns, 1911.....	G. H. Farrar.....	Mar. 20, 1897	785 00	600 00	185 00
Sault au Mouton.....	C. E. Nolet.....	April 11, 1907	Nil.	200 00	
Sorel.....	J. A. Proulx.....	June 6, 1901	595 00	500 00	95 00
Trois Pistoles.....	E. T. Pettigrew.....	April 11, 1899	Nil.	100 00	
Tadousac.....	A. Gingras.....	June 6, 1906	Nil.	200 00	
Grand Manan.....	A. H. Cheney.....		6 00		

PROVINCE OF NEW BRUNSWICK.

Alma.....	G. W. Parson.....	Mar. 2, 1898	27 00	100 00	
Back Bay.....	Harry W. Harter.....		Nil.		
Baie Verte.....	Chas. Trenholme.....		5 00		
Bathurst.....	Capt. M. Daley.....	April 15, 1907	65 50	200 00	
Black's and Beaver Har- bour.....	E. W. Cross.....	Sept. 17, 1883	Nil.	100 00	
Buctouche.....	H. Hutchison.....	April 17, 1897	Nil.	100 00	
Campbellton.....	G. E. Asker.....		114 00	200 00	
Campobello.....	G. W. Sank.....	May 12, 1910	11 00	100 00	
Cape Bald.....	Jas. L. Cormier.....	Aug. 19, 1911	Nil.	200 00	
Cape Tormentine.....	M. S. Treene.....	May 13, 1901	23 00	200 00	
Caracquet.....	J. A. Albert.....	Nov. 7, 1905	25 50	150 00	
Chatham.....	R. J. Walls.....	July 13, 1898	171 50	300 00	
Cocagne.....	Jean Thomas Bourque.....	June 23, 1905	0 50	100 00	
Dalhousie.....	W. S. Smith.....	Mar. 19, 1888	120 50	200 00	
Dorchester.....	Jas. Shea.....	Oct. 25, 1900	52 00	200 00	
Fairhaven.....	A. Calder.....	July 30, 1901	4 00	200 00	
Grand Harbour.....	Turner Ingalls.....	April 19, 1907	7 50	100 00	
Gull Rock Channel.....	Geo. A. Johnson.....	April 27, 1904	Nil.	100 00	
Harvey.....	Wm. Wood.....	June 9, 1903	39 00	100 00	
Heron Channel.....	Duncan Robertson.....	July 5, 1897	22 00	200 00	
Hillsborough.....	Jno. O. Shaughnessy.....	April 13, 1898	25 50	150 00	
Hopewell Cape.....	J. H. Christopher.....	April 13, 1898	2 00	200 00	
Ledge of St. Stephens.....	Wm. McBean.....	June 12, 1894	Nil.	100 00	
Tetete.....	H. W. Harris.....	Feb. 16, 1906	Nil.	100 00	
Little Shippegan.....	Jos. Beaudoin.....	Oct. 27, 1906	Nil.	100 00	
Moncton.....	Benj. Toombs.....	April 12, 1905	13 50	200 00	
Musquash.....	J. McNulty.....	Sept. 28, 1896	6 00	100 00	
Newcastle.....	Jno. Russell.....	June 27, 1904	65 50	300 00	
North Head.....	J. E. Gaskill.....	Mar. 29, 1907	7 00	100 00	
Port Elgin and Baie Verte	C. Trenholme.....	April 30, 1907	Nil.	200 00	

SESSIONAL PAPER No. 21

TABLE showing the names of ports proclaimed under certain Dominion Acts.—*Con.*PROVINCE OF NEW BRUNSWICK—*Continued.*

Name of Port.	Harbour Master.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. G.
			\$ cts.	\$ cts.	\$ cts.
Pokemouche.....	M. Landry.....		Nil.	100 00	
Richibucto.....	Jas. A. Jardine.....	May 11, 1874	23 50	200 00	
Sackville.....	Eliab Chase.....	May 11, 1904	17 00	200 00	
Seal Cove.....	J. W. Wooster.....	April 19, 1907	10 00	100 00	
St. Andrews.....	Capt. R. Keay.....	Feb. 16, 1909	14 50	100 00	
St. George.....	G. W. McKenzie.....	May 10, 1900	16 00	100 00	
St. Stephen.....	Capt. Andrew McWha.....		Nil.		
St. Martin and Quaco.....	J. R. McDonough.....	July 16, 1902	72 00	100 00	
Shediac.....	Capt. Jno. Newman.....	Dec. 31, 1909	22 00	300 00	
Shippigan.....	J. Degrose.....	April 14, 1903	16 00	100 00	
Tracadie.....	T. Savoy.....	Sept. 23, 1899	8 50	100 00	
Waterside.....	H. T. Copp.....	Feb. 22, 1911	8 00	100 00	
West Isles.....	B. Simpson.....	May 27, 1901	Nil.	200 00	
Whitehead.....	A. Cheney.....	April 19, 1907	5 00	100 00	

PROVINCE OF NOVA SCOTIA.

Abbots Harbour.....	F. D. Etrement.....	May 23, 1901	Nil.	200 00	
Advocate Harbour.....	H. L. Barnes.....	April 20, 1910	13 50	100 00	
Amherst.....	Frank A. Cotes.....	April 3, 1907	4 50	300 00	
Annapolis.....	Jno. Lindgren.....	July 7, 1898	64 00	200 00	
Apple River.....	Benj. Atkinson.....	Feb. 1, 1909	Nil.	200 00	
Arichat.....	Jno. Langlois.....	May 22, 1909	23 00	200 00	
Baddeck.....	Peter L. McFarlane.....	Nov. 6, 1909	Nil.	100 00	
Barrington.....	B. Kenny.....	July 6, 1893	20 50	200 00	
Bayfield.....	David Sutton.....	May 22, 1910	1 50	200 00	
Bay St. Lawrence.....	J. W. Fitzgerald.....	Dec. 22, 1910	Nil.	200 00	
Bear River.....	Wm. McFadden.....	Sept. 27, 1897	27 50	100 00	
Beaver Harbour.....	H. Hawbott.....	Sept. 22, 1888	6 00	100 00	
Big Harbour.....	Don. G. McKenzie.....	April 18, 1908	Nil.	100 00	
Bridgewater.....	W. Oakes.....	Jan. 28, 1896	97 50	100 00	
Big Bras d'Or.....	Jno. A. Bain.....	Feb. 7, 1910	Nil.	200 00	
Big Pond.....	Michael A. McIsaac.....	Mar. 8, 1906	Nil.	200 00	
Cape Canso.....	Geo. Oliver.....	Feb. 14, 1905	91 50	150 00	
Cape Negro.....	A. D. Perry.....		5 00	200 00	
Chester.....	A. G. Corkum.....	July 8, 1896	13 00	100 00	
Cheticamp.....	F. Ancoine.....	April 15, 1896	3 00	100 00	
Clark's Harbour.....	J. G. Nickerson.....		66 00	200 00	
Clementsport.....	J. McCain.....	Oct. 18, 1898	13 00	150 00	
Descouse.....	M. Martell.....	April 22, 1902	5 50	100 00	
Digby.....	K. Anderson.....	June 19, 1902	43 00	200 00	
East Bay.....	Donald McInnis.....	April 5, 1886	Nil.	100 00	
Fourchie.....	Enox Conn.....	May 25, 1910	Nil.	100 00	
Freeport.....	Leonard Ring.....	Mar. 20, 1909	16 50		
Gabarouse.....	Capt. G. Harris.....	Feb. 22, 1911	Nil.	100 00	
Glasgow and Cape Breton Pier.....	A. McQuarrie.....	Oct. 30, 1880	33 00	300 00	
Guysboro.....	A. M. Peart.....	Feb. 11, 1902	7 50	100 00	
Halifax.....	F. G. Rudolf.....	May 13, 1910	Nil.	1,800 00	
Hantsport.....	Wm. McCulloch.....	Jan. 17, 1892	Nil.	300 00	
Ingonish, North Bay.....	Angus McLean.....	Apr. 21, 1910	7 50	200 00	
Ingonish, South Bay.....	Jas. Doucette.....	Apr. 30, 1901	14 00	100 00	
Ingram River.....	Eugene Huntly.....	Jan. 19, 1907	39 00	100 00	
International Pier, Sydney	M. J. Neville.....	Oct. 30, 1880	312 00	300 00	
Isaac's Harbour.....	T. D. Cook.....	June 19, 1900	20 50	100 00	
Jeddore.....	E. Baker.....	Dec. 3, 1903	15 50	100 00	
Jordan Bay.....	F. Thorburn.....	May 11, 1901	7 00	150 00	
Kelly Cove.....	Judah Kenny.....	Apr. 6, 1908	Nil.	100 00	
La Have.....	G. H. Zwicker.....	Feb. 25, 1875	35 00	300 00	
L'Ardoise.....	Geo. Burke.....	Aug. 29, 1884	3 00	100 00	
Liscomb.....	L. Wilson.....	Feb. 20, 1900	14 00	200 00	
Gillis Point East.....	D. J. Campbell.....	Apr. 17, 1899	Nil.	100 00	
Little Bras d'Or Lake.....	W. McLean.....	Sept. 23, 1907	Nil.	100 00	
Little Bras d'Or Harbour.....	J. Leblanc.....	Oct. 9, 1909	Nil.	200 00	

12 00

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TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*PROVINCE OF NOVA SCOTIA—*Continued.*

Name of Port.	Harbour Master.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R. ¹⁰
			\$ cts.	\$ cts.	\$ cts.
Little Glace Bay.....	E. Douglas Rigby.....	May 8, 1884	12 50	200 00	
Little Narrows.....	K. McLennan.....	Nov. 1, 1897	Nil.	100 00	
Liverpool.....	Capt. Jas. Ryan.....	Dec. 22, 1906	Nil.	200 00	
Lockeport.....	Geo. J. Locke.....	Apr. 2, 1906	Nil.	100 00	
Louisburg.....	Jno. Townsend.....	May 11, 1899	358 00	150 00	
Louisburg.....	H. E. V. Levatte.....	Oct. 13, 1898		200 00	8 00
Lunenburg.....	J. Heckman.....	Oct. 1, 1909	180 50	200 00	
Mabou.....	J. McInnis.....	July 11, 1900	3 00	100 00	
Mahone Bay.....	Aaron Hyson.....	Feb. 18, 1908	39 00	200 00	
McNair's Cove.....	R. McEachern.....	Mar. 8, 1875	Nil.	150 00	
McKinnon's Harbour.....	D. J. McNeil.....	Oct. 9, 1909	5 00	200 00	
Marble Mountain.....	D. McDonald.....	July 26, 1892	11 00	200 00	
Margaretsville.....	Capt. Jno. McGranaghan.....	May 29, 1906	3 00	100 00	
St. Margaret's Bay.....	H. C. Garrison.....	Dec. 14, 1901	5 50	100 00	
Margaree.....	F. P. Chiasson.....	Mar. 6, 1909		100 00	
Marie Joseph.....	Chas. Dipon.....	Feb. 2, 1907	0 50	100 00	
Merigonish.....	F. B. Olding.....	Mar. 11, 1910	Nil.	200 00	
Meteghan Harbour.....	Capt. Jno. McLair.....	Nov. 17, 1906	11 50	100 00	
Meteghan River.....	Luke A. Comeau.....	June 1, 1897		100 00	
Musquodoboit.....	Thos. Williams.....	May 31, 1905	6 50	100 00	
New Haven.....	Victor A. McLeod.....	Aug. 17, 1889		100 00	
Neil Harbour.....	R. Payne.....	July 15, 1905	2 00	100 00	
Noel.....	Sydney O'Brien.....	Oct. 26, 1905	13 50	200 00	
Northport.....	J. Davis.....	Dec. 21, 1902	5 50	100 00	
North West Cove.....	P. Bouthier.....	June 30, 1902	0 50	200 00	
Parrsboro.....	R. Smith.....	Apr. 30, 1892	102 00	300 00	
Petit de Grat.....	S. Boudrot.....	June 5, 1895	8 00	200 00	
Pictou.....	Hbr. Commissioners.....			300 00	
Petite River Bridge.....	J. Nelson Parks.....	Apr. 27, 1888	2 00	100 00	
Port George.....	Vacant.....				
Port Greville.....	D. Graham.....	Apr. 27, 1909	39 50	200 00	
Port Hawkesbury.....	J. Lamey.....	June 2, 1909	113 50	200 00	
Port Hastings.....	Geo. L. McLean.....	Feb. 15, 1908	102 00	200 00	
Port Hood.....	J. H. Murphy.....	July 9, 1875	3 00	200 00	
Port La Tour.....	Wm. Sholds.....	Feb. 18, 1898	19 50	200 00	
Port Lorne.....	F. Beardsley.....	June 9, 1907	Nil.	200 00	
Port Maitland.....	J. Ellis.....	Dec. 10, 1896		200 00	
Port Morier.....	H. McDonald.....	Mar. 3, 1879	8 00	400 00	
Port Mulgrave.....	J. A. McDonald.....	June 29, 1908	Nil.	200 00	
Port Medway.....	J. Hopkins.....	Feb. 13, 1903	12 00	200 00	
Port Wade.....	Capt. J. M. McWhinnie.....	Oct. 14, 1907	22 00	200 00	
Pubnico.....	D. L. Annrean.....	Sept. 27, 1882	41 50	100 00	
Pugwash.....	Gilbert M. Allen.....	May 15, 1901	20 00	100 00	
River Port.....	F. J. K. Kreaser.....	Jan. 8, 1901	34 50	100 00	
River Bourgeois.....	E. C. Boushie.....	Apr. 9, 1886	3 00	100 00	
River Hebert.....	W. Y. Theal.....	July 24, 1905	32 50	100 00	
River John.....	H. Campbell.....	July 1, 1891	Nil.	100 00	
St. Ann's Bay.....	Geo. E. Fader.....	Sept. 21, 1906	33 50	200 00	
St. Mary's River.....	Robt. Quinn.....	July 25, 1909	2 50	200 00	
St. Peter's Harbour.....	P. McNeil.....	Sept. 17, 1883	93 50	200 00	
St. Ann's Harbour.....	Alex. McLeod.....	Apr. 16, 1909		200 00	
Sambro.....	B. Smith.....	May 27, 1890		200 00	
Sheet Harbour.....	Henry Hall.....	Apr. 11, 1898		200 00	
Shelbourne.....	J. C. Morrison.....	May 4, 1897	108 00	200 00	
Ship Harbour.....	H. Siteman.....	June 2, 1884	3 00	100 00	
Spencer's island.....	B. McLellan.....	May 22, 1899	9 00	100 00	
Tangier.....	C. A. Hitchey.....	Nov. 14, 1901	2 50	200 00	
Tenecape.....	David Tingard.....	Oct. 26, 1905		200 00	
Tatamagouche.....	Wm. Reilly.....	June 1, 1900	0 50	200 00	
Tidnish.....	R. B. Davidson.....	Feb. 19, 1910		100 00	
Tiverton.....	J. Blackford.....	Apr. 3, 1900	5 00	100 00	
Torbay.....	I. Fougere.....	Aug. 25, 1903	6 50	200 00	
Tusket.....	Cyrille Doucet.....	Nov. 21, 1902		100 00	
Tusket Wedge.....	Capt. H. A. LeBlanc.....	Mar. 3, 1911	43 50	100 00	
Victoria Pier' South Bar.....	Ernest Richardson.....	Nov. 1, 1897		200 00	
Wallace.....	J. D. Patton.....	Feb. 14, 1896	3 00	100 00	
West Arichat.....	Capt. L. Forest.....	May 25, 1910		100 00	

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TABLE showing the names of ports proclaimed under certain Dominion Acts.—*Con.*PROVINCE OF NOVA SCOTIA—*Concluded.*

Name of Port.	Harbour Master.	Date of appointment.	Amount collected.	Remuneration allowed.	Amount paid to Cr. R.'s G.
			\$ cts.	\$ cts.	\$ cts.
Walton.....	Benj. McCulloch.....	Oct. 25, 1905		200 00	
West Bay.....	Hector McInnis.....	May 26, 1906		100 00	
West Port.....	Geo. Welch.....	Jan. 29, 1898	44 50	200 00	
Weymouth.....	S. McCormack.....		47 00		
White Head.....	Levi Munroe.....	Feb. 8, 1909	32 00	200 00	
Whycocomagh.....	N. Matheson.....	July 6, 1909		100 00	
Wolfville.....	J. L. Franklin.....		5 75	100 00	
Wood Harbour.....	J. Arechia.....	Feb. 19, 1892	28 50	200 00	
Yarmouth.....	Capt. G. L. Wetman.....	Jan. 24, 1911	209 00	250 00	
Windsor.....	Wm. McCulloch.....		203 00	300 00	
Washabuck.....	Vincent McLean.....		Nil.		

PROVINCE OF PRINCE EDWARD ISLAND.

Alberton.....	Jno. Kinch.....	July 30, 1901	3 00	200 00	
Bay Fortune.....	G. A. Coffin.....	Aug. 29, 1875		200 00	
Brudenell.....	J. A. Gordon.....	Oct. 26, 1905		200 00	
Cardigan River.....	F. Gallant.....	Apr. 27, 1908		100 00	
Cove Head.....	M. Kielly.....	Apr. 23, 1904		100 00	
Charlottetown and Hillsboro.....	J. White.....	May 6, 1909	146 00	400 00	
Crapaud.....	W. Myers.....	June 17, 1874	5 00	200 00	
Egmont Bay.....	Geo. Henry.....	Dec. 5, 1906	1 00	200 00	
Georgetown.....	Jno. Westawa.....		15 50	200 00	
Malpeque.....	J. Champion.....	Dec. 10, 1896	2 00	200 00	
Miminegash.....	P. Doucette.....	Jan. 21, 1908		100 00	
Montague Bridge.....	Hugh McPherson.....	May 5, 1904	4 50	200 00	
Murray Harbour.....	Geo. McLeod.....	Jan. 19, 1907	7 50	200 00	
Murray River.....	Geo. McLeod.....	Feb. 9, 1907	3 00	200 00	
New London.....	H. McLeod.....	July 6, 1910	3 00	200 00	
Pinette.....	J. D. McDonald.....	Oct. 22, 1903	1 00	100 00	
Port Hill.....	W. C. Brown.....	June 20, 1898		200 00	
Pownall.....	M. Haley.....	Mar. 30, 1897		100 00	
Rustico.....	Jerome Gallant.....	July 27, 1912		200 00	
St. Peter's Bay.....	Geo. Barry.....	May 3, 1901		200 00	
Souris E. & W.....	J. Tierney.....	May 15, 1905	25 50	200 00	
Summerside.....	J. Matheson.....	Feb. 8, 1907	31 50	200 00	
Tracadie (Grand).....	Jas. McAuley.....	Apr. 18, 1910		200 00	
Vernon River Bridge.....	J. Finlay.....	Oct. 9, 1884	Nil.	200 00	
Wood Island.....	Jas. Young.....	May 22, 1899	Nil.	100 00	

PROVINCE OF BRITISH COLUMBIA.

Chemainus.....	Lewis G. Hill.....		10 00	200 00	
Comox.....	G. H. Rowe.....		303 00	200 00	103 00
Ladysmith.....	W. Fraser.....	Mar. 29, 1906		200 00	
Nanaimo and Departure bay.....	J. Knarston.....	Oct. 26, 1905	485 00	500 00	
New Westminster.....	W. B. Shiles.....	Feb. 15, 1908	174 00	400 00	
Snug Harbour.....	G. C. Tunstall, Jr.....	Apr. 18, 1910	8 00	200 00	
Vancouver.....	Capt. D. A. McInnis.....	June 22, 1909	679 50	600 00	79 50
Victoria and Esquimalt.....	C. E. Clarke.....	Nov. 3, 1894	727 00	600 00	127 00
Prince Rupert.....	T. H. Alcock.....		211 50		

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TABLE showing the names of ports proclaimed under certain Dominion Acts—*Con.*

RECAPITULATION.

Province.	Number of Harbours.	Amount Collected.	Amount paid to Rec. Gen.
		\$ cts.	\$ cts.
Ontario.....	22	1,023 00	
Quebec.....	35	2,566 30	417 50
New Brunswick.....	44	1,020 00	
Nova Scotia.....	123	3,194 25	20 00
Prince Edward Island.....	25	248 50	
British Columbia.....	9	2,596 00	309 50
	258	10,648 05	747 00

APPENDIX No. 7.

STATEMENT OF EXPENDITURE OF MARINE BRANCH FROM CONFEDERATION TO MARCH 31, 1912.

1868.. . . . .	..\$ 371,070 56
1869..	360,899 90
1870..	367,189 11
1871..	389,537 12
1872..	518,958 49
1873..	706,817 92
1874..	845,150 90
1875..	844,586 09
1876..	970,146 27
1877..	820,054 38
1878..	786,156 23
1879..	755,359 47
1880..	723,390 89
1881..	761,730 62
1882..	774,831 53
1883..	825,010 82
1884..	927,241 61
1885..	1,129,901 14
1886..	980,120 59
1887..	917,557 31
1888..	883,250 85
1889..	1,023,801 34
1890..	807,417 53
1891..	885,410 11
1892..	861,426 80
1893..	898,720 03
1894..	905,654 34
1895..	895,828 28
1896..	793,634 49
1897..	867,772 90
1898..	856,192 50
1899..	1,102,601 90
1900..	982,561 97
1901..	1,029,925 32
1902..	1,501,618 88
1903..	1,671,494 77
1904..	2,150,940 31
1905..	4,747,722 81
1906..	5,066,252 66
1907..	3,637,599 82
1908..	5,374,774 18
1909..	4,692,806 85
1910..	4,197,420 24
1911-12..	4,911,140 67

APPENDIX No. 8.

METEOROLOGICAL OFFICE.

TORONTO, May , 1912.

SIR,—I have the honour to submit the forty-first annual report of the Meteorological Service, this report being for the fiscal year ended March 31, 1912, with appendices A and B, reports of the observatories at St. John, N.B. and Quebec.

The number of persons in receipt of pay from the Meteorological Service for various duties in connection therewith has been 280. Of this number 30 were employed in the central office; 41 were paid salaries as observers at telegraph reporting stations and 100 as agents for the display of storm signals, while 109 received some small remuneration for observations taken with regularity at points in outlying districts.

The following observing stations have been opened since my last report:

BRITISH COLUMBIA.

Class II & S	Salmon Arm, Experimental Farm.....	T. A. Sharpe.
Class II	Greenwood.....	J. S. Birney.
" II	Crawford Bay.....	W. J. Kidman.
" III	Shawinigan Lake.....	H. T. Ravenhill.
" III	Akamina.....	Royal Canadian Oil Co.
" III	Armstrong.....	L. W. Patten.

ALBERTA.

Class II	Sundial.....	J. B. Evans.
" II	Delia.....	W. Miller.
" II	Redlow.....	P. Flint.
" III	Pekisko.....	Duncan Cameron.
" III	Dunstable.....	A. D. Gilmer.
" III	Priddis.....	H. B. Gray.
" III	Nateby.....	L. M. Forster.

SASKATCHEWAN.

Class II	Cumberland House.....	R. Hooker.
" II & S	Scott—Experimental Farm.....	R. E. Everest.
" II	Quill Lake.....	T. W. Lytle.
" II	Lost River.....	H. C. Gurney.
" II	Yellow Grass.....	John Morrison.
" II	Pilger.....	P. Mutter.
" II	Imperial.....	J. G. Hobman.
" II	Chagoneess.....	J. C. Macleod.
" II	Fort Qu'Appelle.....	R. H. Carter.
" III	Meadow River.....	Pete Evans.

MANITOBA.

Class II	Ninette.....	A. W. Stewart, M.D.
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ONTARIO.

Class II	Providence Bay.....	W. P. Guy.
" II	Matheson.....	J. G. Davie.
" II	Scarboro Junction.....	David Martin.
" II	Almonte.....	O. E. Henderson.
" II	Goderich.....	H. Keith Revell
" III	Fort Frances.....	
" III	Wattenwyl.....	Wm. F. Eppe.

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QUEBEC.

Class II & S	Cap Rouge—Experimental Station.....	G. A. Langelier.
" II	La Tuque.....	E. Tremblay.
" II	Mistassini.....	Friar M. Paul, P.C.R.
" II	White Shore Lake.....	Dr. Thos. A. Willis.
" III	Perkins Mills.....	J. A. Fauteux.
" III	Kepawa.....	A. T. O'Neil.
" I	Harrington.....	Miss Maud Cox.

NOVA SCOTIA.

Class II	Kentville.....	W. S. Hiltz.
" III	Gaspereaux Lake.....	G. Lane.
" III	White Rock.....	Chas. O'Leary.
" III	Rapid Falls Mill.....	E. S. Miles.
" III	Indian Garden.....	W. G. Yorkston.
" III	Kedgemakooogie Lake.....	L. D. Mitchell.
" III	Mushamush River.....	T. G. Nicol.
" III	Big Mushamush Lake.....	T. G. Nicol.
" III	New Germany.....	

There are now in the Dominion 518 meteorological stations, including all classes, and at the majority of these the observing is performed voluntarily by men who are interested in the subject of weather and weather changes. They are doing valuable work in the interests of the country and their untiring zeal is duly appreciated by the Meteorological Service.

The matters of chiefest interest in the central office during the past year have been a marked development of the synchronous weather chart, and the completion of the establishment of a physics laboratory for the pursuance of research in atmospheric physics.

The reports of observations used in the preparation of the daily weather chart are now supplemented by numerous reports from Europe and Asia, together with reports from Iceland, the Faroe Islands, the Shetland Islands, the Azores, and various places in the West Indies, also from Honolulu and Manila, and from stations in Alaska and the Aleutian islands. The eastern hemisphere observations are taken at 7 o'clock, Greenwich mean time, or six hours earlier than those in America, but with the broad gap of the Atlantic lying between Europe and America this is seemingly of no importance, as due allowance can be made for changes occurring in the interval.

This new field of observation promises to yield a harvest of information and usefulness, such as was unrecognized until the scheme became an accomplished fact. With a knowledge of the meteorological conditions prevailing north of the British Isles and in Iceland, and also with a knowledge of the conditions in Alaska, it is found possible to deduce with surprising accuracy the conditions prevailing in the far northern portions of the Dominion, whence comes the cold waves which in winter with varying frequency spread over the continent.

The work of the physics branch proceeds satisfactorily. In connection with the exploration of the upper atmosphere, balloons carrying the Dines Meteorograph have been despatched and of these 12 have been returned to the central office with good results. The heights reached varied between 6.3 and 12.6 miles, and the isothermal layer was found at heights varying between 5.8 and 9.9 miles, and with temperatures between 71° and 94° Fahrenheit.

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The following table gives the chief data obtained in the various ascents.

BALLOON ASCENTS DURING 1911.

Date.	Starting Point.	A Miles.	B F	C Miles.	D F	E Miles.	F Direction.
Feb. 3	Toronto.....	6.2	-90.4	7.0	-82.3	83.9	E.N.E.
June 6	Toronto.....	8.1	-81.4	8.6	-81.4	55.0	S.E.
June 7	Toronto.....	7.5	-74.2	8.5	-72.4	41.0	S. 17 E.
June 8	Toronto.....	8.1	-87.9	8.5	-88.6	50.0	S. 24 E.
July 5	Woodstock.....	9.3	-94.0	10.6	-80.5	44.0	N.E.
Aug. 2	Woodstock.....	8.4	-86.8	10.6	-79.6	58.0	N.E.
Sept. 7	Woodstock.....			6.3	-38.2	90.7	S. 80 E.
Sept. 9	Woodstock.....	8.8	-79.6	12.6	-74.2	115.0	S. 80 E.
Nov. 6	Woodstock.....	9.9	-77.8	11.5	-79.6	126.8	E.
Dec. 5	Woodstock.....	7.2	-83.2	7.7	-79.6	85.8	S. 45 E.
Dec. 6	Woodstock.....			6.3	-70.6	70.8	N. 70 E.
Dec. 7	Woodstock.....	5.8	-70.6	7.5	-69.7	252.9	N. 70 E.

A—Height in miles of commencement of isothermal column.

B—Temperature, F., at bottom of column.

C—Greatest height of reliable record in miles.

D—Temperature, F., at greatest height.

E—Distance in miles of point where balloon fell.

F—Bearing of falling point from starting point.

The kite station at Agincourt for observations in free air has been in operation throughout the year. The equipment is similar to that employed by Dines at Pyrtton Hill and the Dines kites and meteorographs are used. These kites are very easily constructed and the meteorographs are not expensive; for these reasons it was considered advisable to use them at first until the station was in good working order, after which other kinds and types will be tried. Records of pressure, temperature, humidity and wind direction have been obtained. Ascents began on February 28, 1911, and the highest flight was 7,900 feet above sea level obtained on June 28, 1911.

The movement towards the utilization of water-falls for the production of electrical power has made a knowledge of the rainfall in the various watersheds, a matter of great importance, and during the past year numerous rainfall stations have been established in districts where hitherto reports have been either scant or altogether wanting.

Forecasts have been issued from Toronto twice daily for the succeeding 36 hours for all the provinces, exclusive of British Columbia, and for these a per cent of 86.1 was attained. For the Pacific province the forecasts are issued from Victoria, and a per cent of 84.7 was attained. The forecast and storm signal service for Newfoundland, begun in 1909, has been continued with satisfactory results. Storm signal display stations now number 110, and of 2,610 warnings issued during the year 92 per cent were verified.

As indicated by the percentage of verification the forecasts of the Canadian service are distinctly good and compare most favourably with forecasts issued in other countries. But a still more certain proof of their value is shown by the close attention paid to storm warnings by mariners and fishermen, and by the fact that shippers of perishable goods consult the forecasts before shipping. Another clear indication that the forecasts are highly valued by those deeply interested in weather changes is found in the confidence with which the pilots of unseaworthy craft, such as dredges and barges at all times of the year, and of all vessels during the late autumn, allow themselves to be guided from port to port by the meteorological official.

INSPECTION OF STATIONS.

The various officials of the Central Office carried out the customary inspection of stations during the fiscal year, having equipment brought into a thorough state of repair, instruments adjusted, and observers instructed. A new telegraph reporting station was established at Harrington, Quebec. The Cochrane station was re-established after destruction by fire.

The following stations were visited during the fiscal year:—

Cape Madgalene, Heath Point, Anticosti, Point Armour, Belle Isle, Point Riche, Harrington, St. Andrews, Grand Manan, Point LePreaux, Souris, Summerside, Charlottetown, Sydney, Halifax, Yarmouth, St. John, Wolfville, Chatham, Father Point, Quebec, Amherstburg, Pelee Island, Cochrane, Lindsay, Kingston, Stonecliffe, Parry Sound, Oakville, Port Credit, Cooksville, Winnipeg, Minnedosa, Qu'Appelle, Moose Jaw, Calgary, Banff, Vancouver, White Horse, Carcross, Atlin, Prince Rupert, Victoria, Hay River, Fort Simpson, Fort Norman, Fort Good Hope, Fort Chipewyan, Fort McMurray, Fort Smith, Westport.

Frequent inspection of stations is desirable in order that reliable results may be obtained, and proposed sites for signal stations should be inspected by an official of this service before the establishment be authorized.

MAGNETIC OBSERVATORY.

There have been no breaks in the magnetic records at the Agincourt observatory during the year. The zeros of the photographic recording instruments were determined by absolute observations, taken weekly for declination and bi-monthly for horizontal force. Weekly observations were also made for the determination of the inclination. A Toepfer earth inductor was added to the equipment of the observatory in February, 1912, and this is now being used as the standard for inclination. Corrections to be applied to results from instruments formerly used are now being determined.

The westerly declination has changed from $6^{\circ} 7.4'$ in March, 1911 to $6^{\circ} 12.5'$ in March, 1912, an increase of $2.2'$. The horizontal force has decreased from 0.16204 C.G.S. units to 0.16181, and the inclination has increased from $74^{\circ} 39.2'$ to $74^{\circ} 39.9'$.

Magnetic disturbances have been of unfrequent occurrence. In declination the greatest variation was recorded on the 8th and 9th of April, 1911, amounting to $1^{\circ} 18.4'$, the horizontal force at the same time passing beyond the range of the photographic instrument. The mean diurnal range of declination varied from a maximum of $13'.2$ in August, 1911 to a minimum of $4'.3$ in January, 1912, whilst that of horizontal force varied from a maximum of .00049 dyne in August, 1911 to a minimum of .00011 in January, 1912.

A redetermination of the constants of the magnetometer used for absolute horizontal force measurements was completed in March, 1911. The results are .00028 lower than formerly obtained with this instrument.

The constants of magnetometer 146 of the Hydrographic Survey department were determined in November and December, and were found to agree with the constants furnished by Kew. Its correction to Toronto standard was then determined and found to be -0.00109 part of H.

During the year, 90 theodolites with magnets attached were compared with the Agincourt Standard Declinometer and index corrections for the magnets were determined and supplied to the surveyor general.

Assistance was given to Mr. C. A. French of the Dominion Observatory, in comparing his instruments with Agincourt standards, both before and after his field work.

An officer of the Meteorological Service, Mr. W. E. W. Jackson, M.A., was assigned to the Hydrographic Surveys Branch for the summer of 1911, to carry on a

magnetic survey of Hudson's bay and strait. Owing to the unfortunate occurrence of a leak in the vessel, the survey had to be abandoned.

The following results were however, obtained:—

Station.	Lat. N.	Long. W.	Date 1911.	Declination corrected to Mean of Day	Inclination.	Horizon- tal Force.
	° ' "	° ' "		° ' "	° ' "	C.G.S. units
Forteau.....	51 27	56 55	July 21.....	-31 45.7		
Green Cove.....	57 42	61 42	Aug. 15.....	-42 10.2	-80 27.0	0.0982
Halifax.....	44 36	63 34	Sept. 15.....	-21 35.4	-73 49.8	0.16149
Rimouski.....	48 30	68 31	Sept. 18.....	-22 51.4	-76 49.1	0.13864

SEISMOLOGY.

The Milne seismograph at Toronto and Victoria have given continuous records throughout the year, the former registering 85 disturbances and the latter 73.

The more important shakes were two of Mexican origin on June 7 and December 16; two of West Indian origin, on October 6 and 10; an Alaskan quake on January 31, and one on March 11, probably of submarine origin west of Vancouver Island, and which caused a sharp and large movement of the Victoria recorder and a lesser movement of that in Toronto.

The network of stations equipped with these instruments has been augmented during the past year by the addition of 13 new stations in various portions of the world, and the committee of the British Association which has undertaken the discussion of results obtained, has now a wide field of observation and much valuable data is being obtained. It is intended within the ensuing year to supplement the Victoria equipment by the addition of several seismological instruments which will enable Mr. F. N. Dennison to continue his investigations under more favourable conditions.

TIME SERVICE.

During the year 88 determinations for time have been made by transits of stars in the meridian with the 3-inch Troughton and Simms transit instrument.

As in former years the positions of the stars given in the 'Berliner Jahrbuch' have been used.

The collimation error of the transit instrument has been chiefly determined by reversal of Polaris and occasionally in conjunction with that of the instrumental azimuth by star transits in reverse position of the axis using the methods of least squares in their computation.

Time has been given very generally and often to inquirers over the telephone and telegraph lines and a number of chronometers and watches both mean and sidereal, have been compared and regulated.

The 11.55 a.m. signal on the bells of the fire alarm system has been continued throughout the year.

Time has also been given to the Canadian Northern railway running out of Toronto, and weekly to the Magnetical Observatory at Agincourt.

The time exchanges between Toronto and Quebec, Montreal and St. John, N.B., have been made as usual, being recorded on the chronographs at Toronto, Montreal and St. John. The errors of the clocks have been computed from the latest observations.

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The following table will show the differences between the times at the several observatories and that at Toronto.

Table giving differences of time obtained from time exchanges between Toronto and other observatories. The sign + indicates slow of Toronto.

Date.	Montreal.	Quebec.	St. John.
	Seconds.	Seconds.	Seconds.
1911—			
April 21.....	-1.28	-1.13	-0.53
May 5.....	-1.53	-1.18	-0.83
May 26.....	-0.49	-0.90	-0.55
June 16.....	-0.17	-0.65	-0.25
June 30.....	-1.36	-0.29	-0.78
July 14.....	-0.67	+0.59	-0.39
July 28.....	-0.82	+0.44	-0.34
August 11.....	-1.01		-0.04
August 25.....	-0.95	+1.63	-0.25
Sept. 29.....	-0.02	+0.59	-0.07
October 20.....	-0.19	-2.61	+0.22
November 10.....	-1.76	+1.00	+0.26
November 24.....	+0.15	+0.66	-0.06
December 8.....	-2.04	-1.33	-0.26
1912—			
January 12.....	-2.92	+0.15	-0.41
January 26.....	-1.86	+0.22	-0.43
February 23.....	-0.78	+2.55	-0.62
March 22.....	-0.53	-0.07	-1.14
Mean difference.....	-1.01	-0.02	-0.36

SUN SPOT OBSERVATIONS.

During the year April 1, 1911, to April 1, 1912, the sun's surface was examined with the 6-inch equatorial telescope on 108 days and maps made showing the position of spots on 47 of those days, while on the remaining 61 days the sun was free of spots. The only group of importance during the year appeared as a rather large elliptical mass of small spots with a tendency to condense into two spots of moderate size at the extremities of the ellipse. This group was first noticed on March 31, 1911, and without doubt existed before that date, but owing to cloudiness no observations were previously obtained. The group was near the sun's equator just west of its axis and finally disappeared over the western limb much reduced in size.

An apparent return of this group was about central on the sun on April 27, 1911; the smaller central spots had entirely disappeared and the two ends of the group condensed into well defined spots with nuclei and penumbra. A remnant of this group persisted for a third appearance, but faded away before reaching the central meridian.

With the exception of a few small spots appearing at intervals, the sun now remained remarkably clear until March 7, 1912, when a small group with faculae came over the eastern limb, disappearing over the western limb on the 18th. Photographs were obtained of this group on March 9, 11 and 13. After this date, the sun remained free of spots until the end of the month.

The following are the dates of observations taken:—

Sun with spots: April, 1911, 1st, 3rd, 6th, 7th, 8th, 10th, 11th, 21st, 24th, 25th, 26th, 28th, 29th; May 1st, 4th, 5th, 6th, 8th, 9th, 22nd, 25th, 26th, 27th, 29th, 30th; June 5th, 30th; July 11th, 13th; September 7th, 8th; October 2nd, 4th, 5th; November 1st, 2nd, 9th, 26th, 22nd, 25th, 29th; December 29th; March, 1912, 7th, 9th, 11th, 13th, 18th.

Sun with no spots: April, 1911, 18th, 20th; May 12th, 19th, 19th; June 8th, 13th, 14th, 15th, 19th, 20th, 28th; July, 6th, 18th, 20th, 21st, 26th, 29th; August 22nd, 25th,

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29th, 30th; September 11th, 12th, 15th 16th, 18th, 22nd, 28th; October 9th, 12th, 14th, 16th, 18th; 22nd, 25th, 28th; November 13th, 16th; December 2nd, 5th, 6th, 7th, 8th, 13th, 19th, 26th, 27th; January, 1912, 3rd, 10th, 15th, 19th; February 3rd, 8th, 13th, 19th, 24th; March 19th, 25th, 28th 29th.

Photographs taken: November, 1911, 22nd, 25th, 29th; March, 1912, 9th, 11th, 13th.

A very great amount of cloudiness during the fall prevented many observations being taken and also the opportunity for photographic work was small.

Respectfully submitted,

R. F. STUPART,

Director.

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BRITISH COLUMBIA—NUMBER OF PREDICTIONS AND PERCENTAGE OF FULFILMENT IN EACH DISTRICT IN EACH MONTH FOR YEAR APRIL 1st, 1911, TO APRIL 1st, 1912.

Month.	VICTORIA AND VICINITY.					LOWER MAINLAND.					KAMLOOPS.					TOTALS.				
	Verified.					Verified.					Verified.					Verified.				
	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.	Number issued.	Number fully.	Number partly.	Number not.	Percentage.
1911.																				
April.....	123	106	6	11	88.6	115	93	3	19	82.2	93	83	1	9	87.6	331	282	10	39	86.7
May.....	111	91	7	13	85.1	105	94	0	11	89.5	93	78	3	12	85.5	309	263	10	36	86.7
June.....	109	91	5	13	85.8	110	81	6	23	76.3	101	91	2	8	89.1	320	263	13	44	84.2
July.....	144	120	8	16	88.2	129	114	2	13	89.1	116	104	5	7	91.8	389	338	15	36	88.8
August.....	133	112	10	11	87.9	123	100	1	22	81.7	110	97	2	11	89.1	366	309	13	44	86.2
September.....	115	91	8	16	82.6	101	81	1	19	79.7	92	79	0	13	85.9	308	251	9	48	83.0
October.....	104	86	8	10	86.5	101	86	4	11	87.1	97	85	0	12	87.6	302	257	12	33	87.1
November.....	112	85	9	18	79.9	94	80	2	12	86.2	94	70	2	22	75.5	300	235	13	52	80.5
December.....	115	84	10	21	77.4	106	89	1	16	84.4	70	46	1	23	66.4	291	219	12	60	77.3
1912.																				
January.....	100	85	3	12	86.6	108	79	8	21	76.9	70	55	1	14	79.3	278	219	12	47	80.9
February.....	109	88	12	9	86.2	105	91	1	13	86.1	74	56	1	17	76.3	288	235	14	39	84.0
March.....	119	101	6	12	87.4	114	96	1	17	84.6	84	78	0	6	92.8	317	275	7	35	87.9
Totals.....	1,394	1,140	92	162	85.1	1,311	1,084	30	197	83.8	1,094	922	18	154	85.1	3,799	3,146	140	513	84.7

NUMBER OF PREDICTIONS AND PERCENTAGE OF FULFILMENT IN EACH DISTRICT, IN EACH MONTH FOR YEAR APRIL 1st, 1911
TO APRIL 1st, 1912—Continued.

Month.	ALBERTA.				SASKATCHEWAN.				MANITOBA.				LAKE SUPERIOR.				GEORGIAN BAY.				LOWER LAKE REGION.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
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NUMBER OF PREDICTIONS AND PERCENTAGE OF FULFILMENT IN EACH DISTRICT, IN EACH MONTH FOR THE YEAR APRIL 1, 1911, TO APRIL 1, 1912.

Month.	OTTAWA VALLEY.					UPPER ST. LAWRENCE.					LOWER ST. LAWRENCE.					GULF.				
	No. of predictions.	Verified.				No. of predictions.	Verified.				No. of predictions.	Verified.				No. of predictions.	Verified.			
		No. fully.	No. partly.	No. not.	Percentage.		No. fully.	No. partly.	No. not.	Percentage.		No. fully.	No. partly.	No. not.	Percentage.		No. fully.	No. partly.	No. not.	Percentage.
1911.																				
April	81	69	9	3	90.7	81	68	12	1	91.3	93	78	12	3	90.3	108	90	15	3	90.3
May.....	111	89	19	3	88.7	111	89	19	3	88.7	110	81	22	7	83.6	110	77	25	8	81.4
June.....	107	73	28	6	81.3	107	82	21	4	86.4	110	87	19	4	87.7	111	88	19	4	87.8
July.....	96	82	8	6	89.6	95	84	7	4	92.1	103	88	6	9	88.3	107	85	10	12	84.1
August.....	104	83	17	4	88.0	104	83	17	4	88.0	120	92	18	10	84.2	124	94	26	4	86.3
September.....	97	73	15	9	83.0	97	73	15	9	83.0	119	88	18	13	81.5	118	87	25	6	84.3
October.....	95	74	14	2	90.5	95	83	9	3	92.1	113	91	15	7	87.2	117	88	23	6	85.0
November.....	108	81	19	8	83.8	108	86	17	5	87.5	123	93	27	3	86.6	120	91	27	2	87.1
December.....	100	76	12	12	82.0	101	77	14	10	83.2	111	82	21	8	83.3	112	76	27	9	79.9
1912.																				
January.....	95	78	12	5	88.4	95	78	11	6	87.9	101	88	10	3	92.1	109	93	13	3	91.3
February.....	92	78	10	4	90.2	92	78	11	3	90.8	96	81	12	3	90.6	101	75	19	7	83.7
March.....	93	74	10	9	84.9	93	78	11	4	89.8	101	86	10	5	90.1	101	84	12	5	89.1
Totals.....	1179	935	173	71	86.6	1179	959	164	56	88.3	1300	1035	190	75	86.9	1338	1028	241	69	85.8

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NUMBER OF PREDICTIONS AND PERCENTAGE OF FULFILMENT IN EACH DISTRICT, IN EACH MONTH FOR THE YEAR APRIL 1, 1911, TO APRIL 1, 1912.

Month.	MARITIME PROVINCES W.					MARITIME PROVINCES E.					TOTALS.				
	No. of predictions.	Verified.				No. of predictions.	Verified.				No. of predictions.	Verified.			
		No. fully.	No. partly.	No. not.	Percentage.		No. fully.	No. partly.	No. not.	Percentage.		No. fully.	No. partly.	No. not.	Percentage.
1911.															
April.....	113	94	12	7	88.5	113	94	13	6	88.9	1118	913	168	37	89.2
May.....	117	78	29	10	79.1	115	81	24	10	80.9	1294	973	251	70	84.9
June.....	104	79	20	5	85.6	104	71	26	7	80.8	1215	901	239	75	84.0
July.....	123	96	18	9	85.4	123	97	15	11	85.0	1235	1027	123	85	88.1
August.....	127	103	12	12	85.8	127	103	10	14	85.0	1328	1078	171	79	87.6
September..	119	87	25	7	83.6	118	82	29	7	81.8	1264	915	262	87	82.8
October.....	115	78	20	17	76.5	115	80	22	13	79.1	1243	955	211	77	85.3
November..	123	81	37	5	80.9	124	92	26	6	84.7	1333	1029	252	52	86.6
December...	119	93	22	4	87.4	119	80	31	8	80.2	1222	887	245	90	82.6
1912.															
January.....	117	91	16	10	84.6	115	90	20	5	86.9	1206	982	168	56	88.4
February....	112	85	23	4	86.2	113	74	33	6	80.1	1111	902	171	38	88.9
March.....	117	87	21	9	83.3	113	83	20	10	82.3	1149	895	181	73	85.8
Totals..	1406	1052	255	99	83.9	1399	1027	269	103	83.0	14718	11457	2442	819	86.14

APPENDIX 'A.'

METEOROLOGICAL SERVICE,

ST. JOHN OBSERVATORY,

ST. JOHN, N.B., April, 1912.

R. F. STUPART, F.R.S.C.,
Director, Meteorological Service,
Toronto, Ont.

SIR,—I have the honour to present the annual report on the Observatory at St. John for the fiscal year ending March 31, 1912.

Meteorological Service.—The routine observations of the various meteorological elements have been made and recorded without interruption throughout the year as heretofore reported. The bi-daily observations forming part of the Canadian Series upon which the forecasts are based, have been telegraphed to Toronto daily at 9 a.m. and 9 p.m., Atlantic Standard time. No change has been made in the equipment or exposure of the eye-reading or electrical and other self-recording instruments, all are in most satisfactory condition.

Owing to the growing demand for copies of the daily weather bulletin, I was instructed to have them printed in place of manifolding on type-writer which restricted the issue and did not always give most legible copies, a much greater number are printed in the time required for our former limited issue, they now present a greatly improved and readable appearance. Copy is prepared and sent to the printer immediately after receipt by telegraph from the central office of the reports from selected coast and inland stations, forecasts and synopsis of prevailing conditions.

After printing, the bulletin is publicly posted and distributed through the mail. Copies are supplied to and fully published by the evening papers with the addition of a brief summary of the local meteorological conditions. The morning forecasts are daily telephoned to St. Martins and posted in the telephone exchange there.

Upon receipt of storm signals messages from Toronto, they are immediately repeated by telephone from the observatory office here to the display stations at St. Martins and Point Lepreaux.

The wind station at Point Lepreaux has an excellent exposure and the records from this part of the Bay of Fundy most valuable. The automatic records are weekly sent here where they are tabulated and analysis made.

Requests for information from the office records by mail, telephone and personal calls are annually increasing and at times entail considerable extra work, signed copies of this data being frequently asked for by shippers, transportation companies, contractors and others, in many cases adjustment of claims depend upon the information furnished.

As in the past the press obtain information for publication during periods of stormy or extreme weather conditions.

The New Brunswick telephone company continue the courtesy of telephoning the Toronto forecast to all their offices at 6 o'clock each morning where they are displayed on forms supplied by the Meteorological Service. This wide and valuable dissemination of the forecast is done gratuitously by the telephone company and is greatly appreciated by residents of the various localities where the forecast would in no other way be available.

Time Service of the Maritime Provinces.—Determination of clock errors and rates have been made nearly every clear night by observation with the transit telescope.

The transit micrometer method of observing was used entirely, the observations and clock comparisons being recorded on the chronograph in the usual manner.

A pessler chambered level vial was fitted to the axis level of transit telescope to replace the vial supplied with the instrument by Troughton & Sims, which was not chambered, in consequence of this the bubble overlapped the scale when observing on extremely cold nights.

Time Signals.—The daily time signal has been sent over the Western Union wires throughout the Maritime Provinces for the two minute interval ending at 10 a.m. This signal is sent automatically by the transmitting clock which at the proper instant opens the line, gives the signal of arranged dots and pauses and then closes the circuit. Before sending this signal comparison with the Riefler standard sidereal clock is made on the chronograph and when necessary the transmitter is brought exactly to time by two small weights which are suspended by a thread from levers fixed to the armatures of electric magnets, under normal conditions one of the weights rests in front of the rod on a pan fixed to the rod about fifteen inches from the suspension of the pendulum, while the other weight is suspended slightly above the pan back of the rod, a switch outside of the clock case either drops the back weight on or lifts the front weight free of the pendulum, thus the time of the transmitting clock may either be accelerated or retarded at the rate of one and a half seconds per hour. As the deviation is always small but a few minutes is required to bring the clock to exact time.

At other times than 10 a.m. time signals upon request of mariners and others from various parts of the Maritime provinces, are frequently sent by telegraph or telephone from this clock, the beats from the relay being audible through long distance telephone.

Wireless Time Signals.—The apparatus at Camperdown, N.S., which automatically repeats the time signal from land line to wireless has proved satisfactory. Navigators equipped with the wireless pick up the signal, state that it is distinctly received and is most practical for checking the ship's chronometers.

Clocks.—The mean-time transmitting clocks and chronograph in office and their various electrical connections as well as the Kullberg and Riefler sidereal clocks in basement clock room are in excellent condition. The Riefler run under constant pressure and temperature continues to give most accurate results.

The electric clock in Halifax has been daily sent the synchronizing signal at 10 a.m., in case of wire trouble the signal was hourly repeated until satisfactorily received.

Owing to the removal of the Western Union's Halifax office, it was necessary to dismount this clock. A cement pier was built in their new premises and the arrangement of electrical connections with time ball considerably improved.

When dismounted the movement of this complicated clock was sent to the makers for a thorough overhauling and repair. Return signals are received from this clock, compared on chronograph with our standard mean-time and rarely show an appreciable difference.

While the clock was dismounted an attempt was made to daily drop the Halifax time ball from St. John, but owing to interference on busy wire, was not always successful, several failures resulting.

Watch and chronometer adjusters and others in Halifax have sounders on their premises connected by wire with the telegraph office and receive the 10 a.m. time signal.

Several additions have been made to the number of clocks which are hourly synchronized from the master clock in St. John, at a few outside places clocks are synchronized once a day.

I have the honour to be, sir,

Your obedient servant,

D. L. HUTCHINSON,

Director, St. John Observatory.

SESSIONAL PAPER No. 21

APPENDIX 'B.'

QUEBEC OBSERVATORY,

QUEBEC, April 27, 1912.

The Director, Meteorological Service,
Toronto, Ont.

SIR,—I have the honour to submit my annual report for the fiscal year ending March 31, 1912.

The usual meteorological and astronomical observations were taken daily.

The correct time was given as heretofore, by means of the noon gun, the time-ball and by telephone.

Chronometers were also rated at the observatory.

In compliance with your request, I paid a visit to the experimental farm at Cap Rouge in June last, to set up meteorological instruments and give the necessary instructions to the superintendent; also in September to place and instruct him in putting up and adjusting a sunshine recorder.

As stated in a previous report, the time-gun which is fired from the citadel towards Levis, could not be heard in the city. I have now been informed by the Department of Militia that upon my suggestion, the gun will soon be placed on top of the wall facing the main entrance to the citadel, where there is a large open space, and from which place it will be easily heard in every ward in the city when fired.

The time-ball has been dropped in a satisfactory manner until the end of navigation season, when the old chain broke.

It was also found that certain repairs were necessary and a report was sent accordingly.

The time-ball is situated near the old observatory on the citadel, and is seen from ships anchored in the stream in front of the city, but not from the 'Louise' basin where all the steamers moor.

There is on the citadel, near the King's bastion, a tower or building formerly used as a powder magazine, which commands the city and harbour.

If the time-ball was placed on top of that building and the gun as above mentioned, this part of the time service would then be nearly perfect.

I am informed that the military authorities also approve this change.

The whole respectfully submitted.

ARTHUR SMITH,

Director.

APPENDIX No. 9.

ANNUAL REPORT OF THE MEDICAL SUPERINTENDENT OF THE
MARINE HOSPITALS SERVICE FOR THE FISCAL
YEAR 1911-1912.

OTTAWA, May 31, 1912.

SIR,—I have the honour to submit the annual report of the transactions of the Marine Hospitals Service, for the fiscal year ended March 31, 1912.

I have the honour to be, sir,

Your obedient servant,

C. H. GODIN, M.D.,

Medical Superintendent Marine Hospitals Service.

A. JOHNSTON, Esq.

Deputy Minister of Marine and Fisheries,
Ottawa, Ont.

Amount of appropriation.	\$70,000 00
Amount of expenditure.	54,779 27
Balance.	\$15,220 73

EXPENDITURE BY PROVINCES.

	No. of sea- men,	No. of days.	Expenditure. \$ cts.
Nova Scotia.	1,468	13,711	26,336 48
New Brunswick.	526	3,466	8,270 31
Prince Edward Island.	221	547	1,616 66
Quebec.	504	4,131	8,788 03
British Columbia.	293	4,240	8,929 82
General Account.			837 97
	3,012	26,095	54,779 27

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TABLE showing the Expenditure for each Port.

Nova Scotia.

Province.	Number of Seamen.	Number of days.	Total Expenditure.
			\$ cts.
Advocate Harbour.....	7	91	444 00
Amherst.....	8	29	77 15
Annapolis Royal.....	23	201	271 71
Apple River.....	5	90	244 50
Arichat.....	19	28	310 00
Baddeck.....	10	18	111 25
Barrington.....	12	21	312 00
Barton.....	7	955	860 74
Bear River.....	2		150 00
Belliveau's Cove.....	2	14	22 00
Bridgetown.....	1		7 00
Bridgewater.....			200 00
Canning.....	1	11	86 35
Canso.....	62	124	525 69
Chester.....	3	21	65 55
Cheticamp.....	43	71	798 50
Cheverie.....	3	133	94 40
Church Point.....	3	87	86 75
Clark's Harbour.....	12	14	254 00
Clemensport.....	3	70	207 60
Digby.....	51	151	373 15
Freeport, Westport and Tiverton.....	24	966	1,112 74
Glace Bay.....	7	75	271 25
Guysboro.....	1		22 00
Halifax: Victoria Gen. Hospital.....	163	3,696	5,623 00
Halifax Infirmary and City Hospital.....	4	31	300 31
Hantsport.....	7	24	89 45
Ingram Docks.....	7		19 70
Jeddore.....	1		3 50
Kingsport.....	3		9 00
La Have.....	2		89 50
Liscomb.....	1		10 00
Liverpool.....	8	207	203 50
Lockport.....	16	358	229 69
Louisburg.....	33	358	1,112 62
Lunenburg.....	35	748	1,349 16
Mahone Bay.....	25		132 45
Maitland.....	2		8 00
Meteghan.....	3	123	104 34
Middleton.....	2		83 00
Margaretsville.....	1	21	24 80
Northport.....	1		3 75
North Sydney.....	323	445	1,194 50
Parrsboro.....	43		303 30
Pictou.....	138	124	838 74
Port Clyde.....	3	49	219 50
Port Dufferin.....	5		42 25
Port Greville.....	10	49	174 50
Ports Hawkesbury, Hastings, Miulgrave and Pt. Tupper.....	10	8	418 00
Port LaTour.....	20		125 00
Port Medway.....	1		50 00
Port Morien.....	16		125 00
Port Wade.....	1		9 00
Pubnico.....	21	119	735 80
Pugwash.....	6		16 50
River Hebert.....	2		25 50
Sandy Cove.....	8	437	418 50
Springhill.....	6	219	205 45
Sherbrooke.....	1		43 00
Shelburne.....	5		26 75
Sheet Harbour.....	3		23 50
Ship Harbour.....	6		26 75
Spry Bay.....	1		19 50
St. Peters, L'Ardoise and River Bourgeois.....	23	64	285 50
Sydney.....	73	1,892	2,234 63

TABLE showing the Expenditure for each Port—*Continued.**Nova Scotia—Continued.*

Province.	Number of Seamen.	Number of days.	Total Expenditure
			\$ cts.
West Bay.....	1		9 00
Wallace.....	3		3 00
Walton.....	2		22 05
Wedgeport.....	8		29 75
Weymouth.....	2	29	139 00
Windsor.....	28	296	361 41
Yarmouth.....	76	1,238	1,907 00
Total.....	1,468	13,711	26,336 48

New Brunswick.

Alma.....	2		26 85
Bathurst.....	13	50	265 35
Beaver Harbour.....	2	15	226 00
Buctouche.....	11		111 21
Campbellton.....	78	31	410 96
Cape Tormentine.....	8		150 00
Caraquet.....	42	7	96 50
Dalhousie.....	43		200 00
Dorchester.....	8	154	134 11
Douglstown.....	47	571	1,486 13
Grand Harbour.....	6	28	122 50
Hillsboro and Hopewell Cape.....	6		150 00
Moncton.....	26	56	230 25
North Head.....	6		21 75
Quaco.....	4		39 50
Richibucto.....	3		204 50
Riverside.....	8		84 70
River Louison.....	6		30 50
Shediac.....	6		200 00
Sackville.....	2		3 50
Shippegan.....	9		22 00
Stonehaven.....	1		11 00
St. Andrews.....	1		5 00
St. Stephens.....	1		7 00
St. John: General Hospital.....	186	2,507	3,760 50
St. John: Private Hospital.....	1	47	70 50
St. John: Seamen's Mission Society.....			200 00
Total.....	526	3,466	8,270 31

Prince Edward Island.

Alberton.....	6		12 45
Cardigan.....	6		46 95
Charlottetown Hospital.....	20	215	311 00
Pr. Edward Island Hospital.....	15	209	313 50
Georgetown.....	5		24 00
Miminegash.....	5	31	97 75
Montague.....	9		28 10
Murray Harbour.....	4		122 92
New London.....	2		12 50
Souris.....	82	78	340 14
Summerside.....	64		250 00
Tignish.....	3	14	48 35
Total.....	221	547	1,616 66



A. JOHNSTON, Deputy Minister. C. STANTON, Asst. Deputy Minis

1912
V.F.W. FORMERET, C.E.
Superintending Engineer
N.B.M. LEAN, C.E. F.A. WISE, C.E.
Assistant Engineers
Ottawa April 1912

TABLE OF DREDGING

[illegible]

LONGUEUIL, SHOLA

Original Depth, 21 feet
Completed in 10 days in 1910.
Length of 35 ft. dredging 1.00 Mh
Width 500 to 750 feet
Material—Hardpan - 1 sh. rock, clay & stone

ILE STE THERESE CHANNEL
Original Depth, 28½ feet
Completed to 30 feet in 1901
Length of 35 ft dredging 1.12
Mile
Width 500 feet
Material—Blue clay and Stones.

LONGUE POINTE AND POINTE AUX TREMBLES CHANNEL

Width 450 to 650 feet
Material —Blue clay & stones, &
some shale rock
Length completed to 35 ft. Mar
1912 0.20 Mile
Estimating to be completed 30
E.S. to 5.83 Miles.

VARENNES TO CAP ST. MICHEL
Original Depth 13 feet
Completed to 20 feet in 1950
Length of 35 feet dredging 3.14
Mile
Width 550 to 650 feet
Material: Clay and Silt
Length completed to 35 ft., 10
ft., 0.56 M.H.
Remaining to be dug 10 ft., 35
ft. 2.64 M.H.

CAP ST. MICHEL TO VERCHERES
Original Depth 18 feet
Completed to 30 feet on 1 x 1
Length of 36 ft dredging 4.73
u
Width 450 to 500 feet.
Materials:—Blue clay and Stour

VERCHER'S TRAVERSE
Original Depth: 26½ feet
Completed to 30 feet in 1908
Length of 35 ft., dredging 1.26
Width 450 to 600 ft.
Material—Soft clay, sand
VERCHER

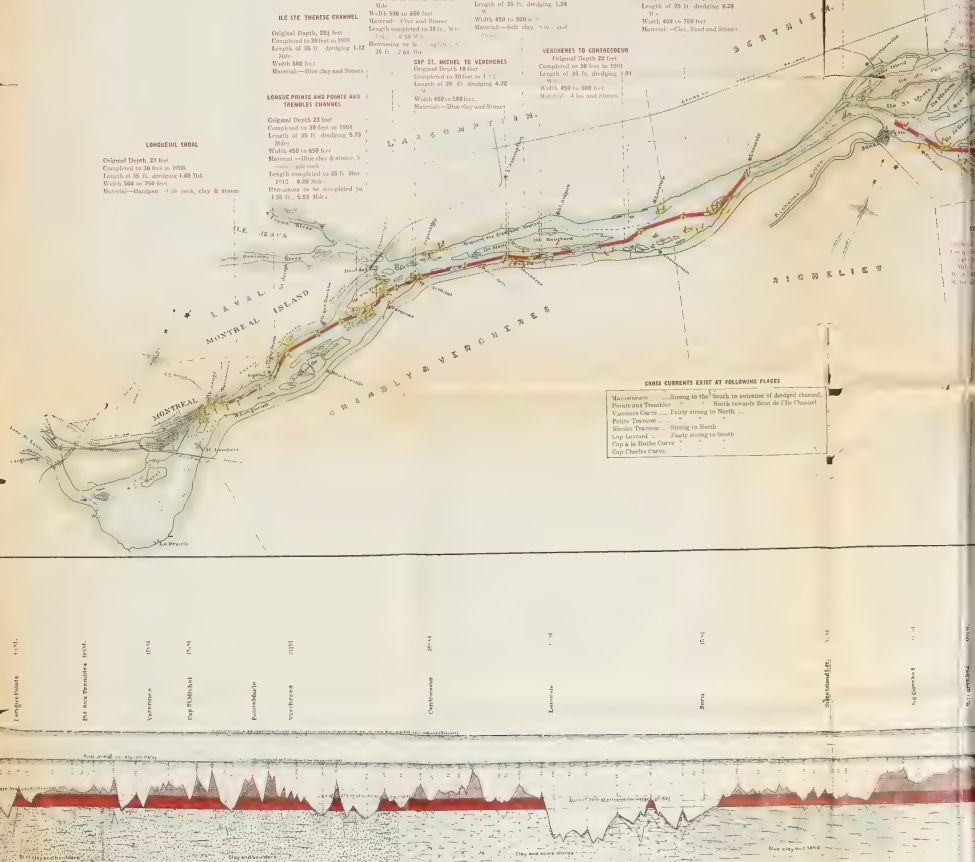
VENCHERES TO CONTRECOEUR	
Original Depth 22 feet	
Completed to 30 feet in 1909	
Length of 35 ft. dredging	1.90
Mile	1
Width 450 to 500 feet	1
Material Clay and Stones.	1
	1

CONTRECOEUR CHANNEL
Original Depth 5 feet.
Length 100 ft. in 1907
Length of 35 ft. dredging 8.28
M.S.
Depth 450 to 750 feet
Material: —Clay, Sand and Stones

LANDRAKE TO MONT
Original Depth 27 fms
Length of 35 ft. dredge 061
Vid
Depth 500 feet
Material - Sand and Clay
213

SOREL TO RIE DE GRACE
Original Depth 19 m
Completed to 30 ft. 18 m
Length of 35 ft. 10.6 m
Males
Width 650 to 690 m
Material—Clay and sand
Length completed to 35 ft. 10.6 m
1012 0.50 Males
Remaining to be completed
35 ft. 4.48 Miles

CROSS CURRENTS EXIST AT FOLLOWING PLACES		
Bay	Strong to the	South to entrance of dredged channel
at Troubles		North towards Bout de l'Île Chacard
Cave	Fairly strong to	North.
avone		
havene	Strong to	North
and	Fairly strong to	South
Rocke Curve	"	"
les Curve	"	"



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TABLE showing the Expenditure for each Port—*Concluded.**Quebec.*

Province.	Number of Seamen.	Number of days.	Total Expenditure.
			\$ cts.
Batiscan.....	1		18 00
Cap Chat.....	7		112 00
Gaspé.....	28		200 00
Chicoutimi.....	2	16	19 20
Grand Pabos.....	3	12	52 00
Grand River.....	5		25 50
Levis.....	8	7	35 50
Matane.....	14		82 75
Magdalen Islands.....	8	80	181 00
Montreal General Hospital.....	203	1,946	3,013 00
Montreal Notre Dame Hospital.....	97	1,080	1,634 00
Montreal Alexandria Hospital.....	5	42	120 00
Montreal Sailor's Club.....			200 00
Montreal Seamen's Institute.....			200 00
New Richmond.....	4		21 50
Paspebiac and New Carlisle.....	12		125 00
Percé.....	3		5 00
Quebec Jeffery Hale Hospital.....	41	430	645 00
“ Hotel Dieu “.....	12	198	297 00
“ City Hospital.....	1	11	15 50
Rimouski.....	4	6	34 00
Sorel.....	12	5	63 50
St. John.....	58		6 00
St. Anne des Monts.....	4	231	580 03
St. Thomas de Montmagny.....	3	33	127 95
Three Rivers.....	29	34	380 60
Total.....	504	4,131	8,788 03

British Columbia.

Chemainus.....			300 00
Ladysmith.....	2	3	32 25
Nanaimo.....	109	122	722 00
Port Simpson.....	2	8	10 71
Prince Rupert.....	10	260	939 50
Union Bay.....	17		400 00
Vancouver, St. Paul's Hospital.....	67	2,115	3,177 50
Vancouver, Strathcona Institute.....			200 00
Victoria Marine Hospital.....	11	125	896 06
Victoria, St. Joseph Hospital.....	77	1,607	2,251 80
Total.....	293	4,240	8,929 82

Printing and Stationery..... \$287 42
 Med. Supt., Travelling Expenses..... 550 55

Total..... \$837 97

3 GEORGE V., A. 1913

TABLE showing Expenditure for Treatment, Board, Supplies, &c.

	Nova Scotia	New Brunswick	Prince Edward Island	Quebec.	British Columbia	General Account
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Board in hospitals and private houses.....	11,069 21	4,331 94	629 14	6,031 55	6,175 52	
Medical and surgical treatment.....	4,001 61	901 91	308 60	726 05	445 50	
Medical officers and keepers salaries.....	8,392 00	2,270 83	672 92	1,275 00	2,050 00	
Fuel.....	878 42	37 80				
Drugs, instruments.....	270 06				9 75	
Burials.....	128 00					
Telephone.....	129 05	20 05			5 50	
Water.....	42 00				5 05	
Transportation.....	83 55		4 00	180 00	2 00	550 55
Repairs.....	836 03	232 38			28 95	
Special nursing.....	314 02	75 00		9 00	7 55	
Light.....					9 00	
Furniture, bedding, &c.....	102 53	200 40		166 43		
Medical assistance.....	90 00		2 00			
Grants.....		200 00		400 00	200 00	
Printing and stationery.....						287 42
	26,336 48	8,270 31	1,616 66	8,788 03	8,929 82	837 97

TABLE showing Amount of Salaries paid to Medical Officers and Keepers during the Fiscal year 1911-12.

Nova Scotia.	\$ cts.	Nova Scotia—Continued.	\$ cts.
Annapolis Royal—		North Sydney—	
Medical officer.....	160 00	Medical officer.....	749 50
Arichat—		Parrsboro—	
Medical officer.....	300 00	Medical officer.....	300 00
Barrington—		Pictou—	
Medical officer.....	300 00	Medical officer.....	400 00
Barton—		Keeper.....	200 00
Medical officer.....	62 50	Ports Hastings, Hawkesbury, Mulgrave and Point Tupper—	
Bear River—		Medical officers.....	400 00
Medical officer.....	150 00	Port Greville—	
Bridgewater—		Medical officer.....	150 00
Medical officer.....	200 00	Port LaTour—	
Canso—		Medical officer.....	125 00
Medical officer.....	375 00	Port Morien—	
Clark's Harbour—		Medical officer.....	125 00
Medical officer.....	250 00	Sandy Cove—	
Digby—		Medical officer.....	200 00
Medical officer.....	250 00	St. Peters, L'Ardoise and River Bourgeois—	
Keeper.....	50 00	Medical officer.....	250 00
Freeport, Westport and Tiverton—		Sydney—	
Medical officer.....	400 00	Medical officer.....	500 00
Glace Bay—		Keeper.....	300 00
Medical officer.....	150 00	Weymouth—	
Liverpool—		Medical officer.....	125 00
Medical officer.....	100 00	Windsor—	
Lockport—		Medical officer.....	120 00
Medical officer.....	100 00	Yarmouth—	
Louisburg—		Medical officer.....	400 00
Medical officer.....	250 00		
Keeper.....	300 00		
Lunenburg—			
Medical officer.....	500 00		
Keeper.....	150 00		
			\$8,392 00

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TABLE showing Amount of Salaries paid to Medical Officers and Keepers during the Fiscal Year 1911-12—*Concluded.*

<i>New Brunswick.</i>	\$ cts.	<i>Quebec.</i>	\$ cts.
Bathurst—		Gaspé—	
Medical officer.....	150 00	Medical officer.....	200 00
Campbellton, N.B.—		Paspebiac and New Carlisle—	
Medical officer.....	320 83	Medical officer.....	125 00
Cape Tormentine—		St. Johns—	
Medical officer.....	150 00	Medical officer.....	600 00
Dalhousie—		Three Rivers—	
Medical officer.....	200 00	Medical officer.....	350 00
Douglstown—			
Medical officer.....	450 00		\$1,275 00
Keeper.....	250 00		
Hillsboro and Hopewell Cape—			
Medical officer.....	150 00		
Moncton—		<i>British Columbia.</i>	
Medical officer.....	200 00	Chemainus—	
Richibucto—		Medical officer.....	300 00
Medical officer.....	200 00	Nanaimo—	
Shediac—		Medical officer.....	600 00
Medical officer.....	200 00	Union Bay—	
	\$2,270 83	Medical officer.....	400 00
<i>Prince Edward Island.</i>		Victoria—	
Murray Harbour—		Medical officer.....	600 00
Medical officer.....	122 92	Keeper.....	150 00
Souris—			
Medical officer.....	300 00		\$2,050 00
Summerside—			
Medical officer.....	250 00		
	\$672 92	Total amount of salaries paid during 1911-12.....	\$14,660 75

TABLE showing Expenditure for Treatment, comprising Doctor's Services, Doctor's Travelling Expenses, Drugs and Board.

Port.	Physicians' Services.	Physicians' Travelling Expenses.	Drugs.	Board.	Total Expenditure
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Advocate Harbour.....	244 00	81 00	59 00	60 00	444 00
Amherst.....	22 00	13 00	2 40	18 75	56 15
Annapolis Royal.....				111 71	111 71
Apple River.....	56 00	114 00	30 00	44 50	244 50
Arichat.....				10 00	10 00
Baddeck.....	72 00	7 00	13 75	18 50	111 25
Barrington.....				12 00	12 00
Barton.....	131 00	185 00	59 00	413 20	788 20
Belliveau's Cove.....	5 00	10 00	2 00	5 00	22 00
Bridgetown.....	5 00		2 00		7 00
Canning.....	12 00	48 00	7 50	6 28	73 78
Canso.....				106 39	106 39
Chester.....	9 00	30 00	5 55	21 00	65 55
Cheticamp.....	176 00	285 00	162 50	85 00	708 50
Cheverie.....	17 00		10 90	66 50	94 40
Church Point.....	7 00	28 00		39 00	74 00
Clark's Harbour.....				4 00	4 00
Clementsport.....	33 00	135 00	9 60	30 00	207 60
Digby.....				68 15	68 15
Freeport, Westport and Tiverton.....				657 74	657 74
Glace Bay.....				61 25	61 25
Guysborough.....	13 00		9 00		22 00
Halifax, Victoria General Hospital.....				5,544 00	5,544 00
Halifax Infirmary and City Hospital.....	147 16			39 70	186 86
Hantsport.....	38 50		26 95	24 00	89 45
Ingram Docks.....	10 00	6 50	3 20		19 70
Jeddore.....	2 00		1 50		3 50
Kingsport.....	5 00		4 00		9 00

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TABLE showing Expenditure for Treatment, comprising Doctor's Services, Doctor's Travelling expenses, Drugs and Board—*Concluded.*

Port.	Physician's Services.	Physicians' Travelling Expenses.	Drugs.		Board.		Total Expenditure
	\$ cts.	\$ cts.	\$	cts.	\$	cts.	\$ cts.
La Have.....	13 00	72 00	4 50				89 50
Liscomb.....	7 00		3 00				10 00
Liverpool.....					103 50		103 50
Louisbourg.....	76 50				37 40		113 90
Lockport.....					129 69		129 69
Lunenburg.....					374 00		374 00
Mahone Bay.....	72 00	36 00			24 45		132 45
Maitland.....	4 00	2 00	2 00				8 00
Margaretsville.....	2 00	10 00	3 80		9 00		24 80
Meteghan.....	33 00	14 50	11 25		43 94		102 69
Middleton.....	23 00	52 00	8 00				83 00
Northport.....	2 00		1 75				3 75
North Sydney.....					445 00		445 00
Pictou.....					62 00		62 00
Port Clyde.....	114 00	61 50	23 00		21 00		219 50
Port Dufferin.....	9 00	28 00	5 25				42 25
Port Greville.....					24 50		24 50
Port Hastings.....	10 00				8 00		18 00
Port Medway.....	14 00	21 00			15 00		50 00
Port Wade.....	1 00	7 00	1 00				9 00
Pubnico.....	164 00	431 00	32 80		78 00		705 80
Pugwash.....	11 00		5 50				16 50
River Hebert.....	15 00	4 00	6 50				25 50
Sandy Cove.....					218 50		218 50
Springhill.....					197 10		197 10
Sherbrooke.....	5 00	35 00	3 00				43 00
Shelburne.....	9 00	13 50	4 25				26 75
Sheet Harbour.....	9 00	4 50	10 00				23 75
Ship Harbour.....	19 00		7 75				26 75
Spry Bay.....	5 00	12 00	2 50				19 50
St. Peters.....					35 50		35 50
Sydney.....					946 00		946 00
Wallace.....	3 00						3 00
Walton.....	20 00		2 05				22 05
Wedgeport.....	22 75	5 00	2 00				29 75
Weymouth.....					14 00		14 00
West Bay.....	9 00						9 00
Windsor.....					241 41		241 41
Yarmouth.....					619 00		619 00
	1,676 91	1,751 50	543 70		11,069 21		15,070 82

NEW BRUNSWICK.

Alma.....	2 00	23 00	1 85			26 85
Bathurst.....	65 00			50 35		115 35
Beaver Harbour.....	14 00	70 00	52 00	15 00		151 00
Buctouche.....	87 00	14 46	9 75			111 21
Campbellton.....	43 00		19 50	27 63		90 13
Caraquet.....	34 00	9 00	50 25	3 25		96 50
Dorchester.....	38 00	6 50	12 65	76 96		134 11
Douglstown.....	10 00			285 50		295 50
Grand Harbour.....	62 00	36 0 0	12 50	12 00		122 50
Moncton.....				30 25		30 25
North Head.....	11 00	3 50	7 25			21 75
Quaco.....	12 00	25 00	2 50			39 50
Richibucto.....	2 00		2 50			4 50
Riverside.....	15 00	65 00	4 70			84 70
River Louison.....	7 00	21 00	2 50			30 50
Shippegan.....	11 00		11 00			22 00

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TABLE showing Expenditure for Treatment, comprising Doctor's Services, Doctor's Travelling Expenses, Drugs and Board—*Concluded.*

NEW BRUNSWICK—*Continued.*

Ports.	Physician's services.	Physicians travelling expenses	Drugs.	Board.	Total expenditure
	\$ cts	\$ cts.	\$ cts.	\$ cts.	\$ cts.
Sackville.....	2 00	.....	1 50	.....	3 50
Stonehaven.....	1 00	10 00	.....	.....	11 00
St. Andrews.....	4 00	.....	1 00	.....	5 00
St. Stephens.....	5 00	.....	2 00	.....	7 00
St John Public General Hospital.....	.....	.....	.....	3,760 50	3,760 50
St. John.....	.....	.....	.....	70 50	70 50
	425 00	283 46	193 45	4,331 94	5,233 85

PRINCE EDWARD ISLAND.

Alberton.....	16 50	.....	4 95	.....	21 45
Cardigan.....	32 00	.....	14 95	.....	46 95
Charlottetown Hospital.....	50 00	.....	.....	255 00	305 00
Prince Edward Island Hospital.....	.....	.....	.....	313 50	313 50
Georgetown.....	11 00	2 00	11 00	.....	24 00
Miminegash.....	26 00	30 00	26 25	15 50	97 75
Montague.....	20 00	.....	8 10	.....	28 10
New London.....	10 00	.....	2 50	.....	12 50
Souris.....	.....	.....	.....	40 14	40 14
Tignish.....	31 00	.....	12 35	5 00	48 35
	196 50	32 00	80 10	629 14	937 74

QUEBEC.

Batiscan.....	13 00	.....	5 00	.....	18 00
Cap Chat.....	26 00	41 00	45 00	.....	112 00
Chicoutimi.....	.....	.....	.....	19 20	19 20
Grand Pabos.....	16 00	27 00	3 00	6 00	52 00
Grand River.....	8 00	.....	17 50	.....	25 50
Levis.....	25 00	.....	.....	10 50	35 50
Matane.....	32 00	27 00	16 25	7 50	82 75
Montreal General Hospital.....	.....	.....	.....	2,919 00	2,919 00
Montreal, Notre Dame Hospital.....	.....	.....	.....	1,620 00	1,620 00
Montreal Alexandra Hospital.....	.....	.....	.....	105 00	105 00
Magdalen Islands.....	75 50	.....	17 75	72 75	166 00
New Richmond.....	4 00	6 00	11 50	.....	21 50
Percé.....	4 00	.....	1 00	.....	5 00
Quebec Jeffery Hale Hospital.....	.....	.....	.....	645 00	645 00
Quebec Hotel-Dieu.....	.....	.....	.....	297 00	297 00
Quebec City Hospital.....	.....	.....	.....	5 50	5 50
Rimouski.....	16 00	.....	8 00	6 00	30 00
Sorel.....	30 00	.....	28 50	5 00	63 50
Ste Anne des Monts.....	57 00	24 00	40 60	255 00	376 60
Three Rivers.....	.....	.....	.....	30 60	30 60
St Thomas de Montmagny.....	90 50	.....	9 95	27 50	127 95
	397 00	125 00	204 05	6,031 55	6,757 60

BRITISH COLUMBIA.

Ladysmith.....	16 00	15 00	.....	1 25	32 25
Nanaimo.....	.....	.....	.....	122 00	122 00
Port Simpson.....	5 00	.....	.....	5 71	10 71
Prince Rupert.....	373 50	.....	36 00	530 00	939 50
Vancouver St. Paul Hospital.....	.....	.....	.....	3,177 50	3,177 50
Victoria Marine Hospital.....	.....	.....	.....	89 26	89 26
Victoria St. Joseph's Hospital.....	.....	.....	.....	2,249 80	2,249 80
	394 50	15 00	36 00	6,175 52	6,621 02

DETAILED EXPENDITURE FOR FUEL.

Nova Scotia—

Louisburg Marine Hospital.. . . .	\$223 00
Lunenburg Marine Hospital.. . . .	192 95
Pictou Marine Hospital.. . . .	134 62
Sydney Marine Hospital.. . . .	140 25
Yarmouth Marine Hospital.. . . .	187 60
	<hr/> \$ 878 42

New Brunswick—

Douglastown Marine Hospital.. . . .	37 80
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Total expenditure.. . . . \$ 916 22

DETAILED EXPENDITURE FOR WATER SUPPLY.

Nova Scotia—

Pictou Marine Hospital.. . . .	\$ 25 00
Sydney Marine Hospital.. . . .	17 00
	<hr/> \$ 42 00

British Columbia—

Victoria Marine Hospital.. . . .	5 05
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Total expenditure.. . . . \$ 47 05

DETAILED EXPENDITURE FOR TELEPHONE SERVICES.

Nova Scotia—

Barton.. . . .	\$ 0 54
Lunenburg Marine Hospital.. . . .	27 00
Sydney Marine Hospital.. . . .	66 50
Yarmouth Marine Hospital.. . . .	35 01
	<hr/> \$ 129 05

New Brunswick—

Douglastown Marine Hospital.. . . .	\$ 20 05
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British Columbia—

Victoria Marine Hospital.. . . .	\$ 5 50
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Total expenditure.. . . . \$ 154 60

DETAILED EXPENDITURE FOR REPAIRS AND MAINTENANCE.

Nova Scotia—

Louisburg Marine Hospital.. . . .	\$109 60
Lunenburg Marine Hospital.. . . .	43 10
Pictou Marine Hospital.. . . .	17 12
Sydney Marine Hospital.. . . .	203 08
Yarmouth Marine Hospital.. . . .	463 13
	<hr/> \$ 836 03

New Brunswick—

Douglastown Marine Hospital.. . . .	232 38
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British Columbia—

Victoria Marine Hospital.. . . .	28 95
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Total expenditure.. . . . \$1,097 36

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GRANTS TO SEAMAN'S MISSIONS.

Montreal Sailor's Institute.. . . .	\$200 00
Catholic Sailors' Club, Montreal.. . . .	200 00
Seamen's Mission Society, St. John, N.B.. . . .	200 00
Strathcona Institute, Vancouver, B.C.. . . .	200 00
	—————\$ 800 00

DETAILED EXPENDITURE FOR LIGHT.

British Columbia—

Victoria Marine Hospital.. . . .	\$ 7 55
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DETAILED EXPENDITURE FOR DRUGS AND INSTRUMENTS.

Nova Scotia—

Lunenburg Marine Hospital.. . . .	\$ 29 35
Yarmouth Marine Hospital.. . . .	158 26
Sydney Marine Hospital.. . . .	33 80
Louisburg Marine Hospital.. . . .	48 65
	—————\$270 06

British Columbia—

Victoria Marine Hospital.. . . .	9 75
	—————\$279 81

DETAILED EXPENDITURE FOR TRANSPORTATION.

Nova Scotia—

Barton.. . . .	\$ 2 00
Church Point	6 25
Halifax.. . . .	5 00
Halifax, Victoria, General Hospital.. . . .	55 00
Meteghan.. . . .	1 65
Parrsboro.. . . .	3 30
Springhill	8 35
Glace Bay	2 00
	—————\$ 83 55

Prince Edward Island—

Charlottetown.. . . .	4 00
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Quebec—

Quebec.. . . .	\$ 1 00
Rimouski.. . . .	4 00
St. Anne des Monts.. . . .	37 00
Montreal.. . . .	138 00
	—————\$180 00

British Columbia—

Victoria General Hospital.. . . .	2 00
	—————\$269 55

DETAILED EXPENDITURE FOR SPECIAL NURSING.

Nova Scotia—

Barton.. . . .	\$ 7 50
Canning.. . . .	12 57
Canso.. . . .	17 00

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Cheticamp..	\$ 90 00	
Church Point..	6 50	
Halifax..	108 45	
Pubnico..	30 00	
Sydney..	28 00	
Yarmouth..	14 00	
		<hr/>
		\$314 02
<i>New Brunswick—</i>		
Beaver Harbour..	75 00	
<i>Quebec—</i>		
Quebec..	9 00	
		<hr/>
Total expenditure	398 02	

DETAILED EXPENDITURE FOR BURIALS.

<i>Nova Scotia—</i>		
Amherst..	\$ 21 00	
Canso..	25 00	
Glace Bay..	28 00	
Halifax..	24 00	
Yarmouth..	30 00	
		<hr/>
		\$128 00

DETAILED EXPENDITURE FOR FURNITURE, BEDDING, ETC.

<i>Nova Scotia—</i>		
Canso..	\$ 2 30	
Lunenburg..	32 76	
Louisburg..	67 47	
		<hr/>
		\$102 53
<i>New Brunswick—</i>		
Douglastown..	\$ 200 40	
<i>Quebec—</i>		
Quebec..	\$ 166 43	
		<hr/>
Total expenditure..	\$ 469 36	

DETAILED EXPENDITURE FOR MEDICAL ASSISTANCE.

<i>Nova Scotia—</i>		
Digby..	\$ 5 00	
Freeport	55 00	
Glace Bay..	30 00	
		<hr/>
		\$ 90 00
<i>Prince Edward Island—</i>		
Charlottetown..	\$ 2 00	
		<hr/>
Total expenditure..	\$ 92 00	

MISCELLANEOUS.

Printing and stationery..	\$287 42	
Med. supt. travelling expenses..	\$550 55	
		<hr/>
		\$ 837 97

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TABULAR STATEMENT showing diseases for which seamen received treatment during 1911-12.

General diseases, 759.

Smallpox..	2
Varioloid..	1
Measles..	15
Scarlet fever..	1
Influenza..	111
Mumps..	1
Diphtheria..	4
Enteric fever..	72
Choleraic fever..	4
Dysentery..	31
Beri-Beri..	5
Malarial fever..	40
Erysipelas..	13
Septicemia..	26
Tetanos..	1
Tubercle..	11
Syphilis..	87
Gonorrhœa	93
Scabisi..	7
Teania..	1
Alcoholism..	157
Gout..	1
Anemia..	13
Diabetes mellitus..	2
Congenital malformation..	3
General debility..	20
New growth, non-malignant..	4
" malignant..	7
Effects of inorganic poison..	2
Effects of heat..	1
Effects of cold..	9
Cyst..	1
Effects of the presence of foreign bodies..	5

Local Diseases, 1,791.

Diseases of the nervous system—

1. Of the nerves, 4.

Neuritis..	3
Multiple neuritis..	1

2. Of the spinal cords and membranes, 8.

Inflammation..	5
Degeneration of lateral column..	2
Locomotor ataxia..	1

3. Of brain and membrane, 8.

Hemorrhage..	2
Meningitis..	6

4. Functional nervous diseases and other diseases of undetermined nature, 66.

Apoplexy..	1
Paralysis..	5
Epilepsy..	2
Spasms..	1
Vertigo..	3
Headache..	11
Neurasthenia..	7
Neuralgia..	35
Hysteria..	1

Diseases of the eye, 78.

Conjunctivitis..	52
Keratitis..	3
Ulceration of cornea..	7
Iritis..	2
Blepharitis..	1
Abcess of eye-lid..	2
Abcess of lacrymal sac..	5
Ecchymosis of eyelid..	2
Optic Neuritis..	1
Amplyopia..	1
Squint..	2

Diseases of the ear, 34.

Inflammation of the external meatus..	1
Cerumen..	3
Otititis media..	27
Abcess axilla..	3

Diseases of the nose, 9.

Inflammation of septum..	2
Necrosis of septum..	1
Inflammation of sinuses..	2
Inflammation of the naso-pharynx..	4

Diseases of the circulatory system, 54.

Pericarditis..	2
Endocarditis..	10
Valvular diseases..	22
Aneurism of the heart..	6
Angina pectoris..	2
Syncope..	2
Arteritis..	3
Aneurism of the arteries..	4
Thrombosis..	1
Phlebitis..	1
Varix..	1

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Diseases of the respiratory system, 308.

Laryngitis.. . . .	19
Bronchitis.. . . .	187
Asthma.. . . .	18
Congestion of the lungs.. . . .	7
Hemorrhage of the lungs.. . . .	2
Pneumonia.. . . .	27
Broncho-pneumonia.. . . .	2
Abscess of the lungs.. . . .	4
Phthisis.. . . .	11
Pleurisy.. . . .	32
Oedema of lungs.. . . .	1

Diseases of the digestive system, 567.

Inflammation of the lips.. . . .	2
Inflammation of the mouth.. . . .	2
Abscess of dental periosteum.. . . .	4
Toothache.. . . .	65
Sore throat.. . . .	10
Tonsilitis.. . . .	67
Post. pharyngeal abscess.. . . .	1
Inflammation of the stomach.. . . .	72
Ulceration of the stomach.. . . .	7
Hemorrhage of the stomach.. . . .	1
Indigestion.. . . .	40
Gastralgia.. . . .	6
Inflammation of the intestines.. . . .	20
Typhlitis.. . . .	1
Colitis.. . . .	6
Appendicitis.. . . .	21
Duodenitis.. . . .	1
Intestinal obstructions.. . . .	4
Constipation.. . . .	10
Diarrhœa.. . . .	84
Pistula in ano.. . . .	3
Ulcer of rectum.. . . .	1
Prolapsus of rectum.. . . .	2
Piles.. . . .	26
Hepatitis.. . . .	9
Jaundice.. . . .	3
Cancer of liver.. . . .	2
Calculi.. . . .	2
Biliary colic.. . . .	3
Hernia.. . . .	21
Inflammation of the biliary ducts.. . . .	3
Peritonitis.. . . .	5
Dyspepsia.. . . .	62
Dropsy.. . . .	1

Diseases of the lymphatic glands, 30.

Adenitis.. . . .	29
Goitre.. . . .	1

Diseases of the urinary system, 72.

Nephritis..	27
Bright's disease..	4
Calculi in kidneys..	3
Abscess perinephritis..	1
Calculi in ureter	1
Hæmaturia..	2
Albuminuria	4
Lithuria..	1
Phosphaturia	1
Pyelitis..	3
Cystitis..	25

Diseases of the generative system, 169.

Urethritis..	92
Stricture..	13
Prostatitis..	2
Phimosis..	3
Paraphimosis..	1
Inflammation of the glands..	2
Soft chancres..	15
Orchitis..	25
Inflammation of the spermatic cord..	1
Varicocele..	10
Epididymitis..	4
Spermatorrhea..	1

Diseases of the organs of locomotion, 108.

Inflammation of the bones—

Osteitis..	3
Periostitis..	4
Caries..	2
Inflammation of the joints..	6
Dislocation of ankle..	2
Dislocation of the spine..	2
Necrosis..	5
Lumbago..	61
Sciatica..	15
Bursitis..	8

Diseases of the connective tissues, 134.

Cellulitis..	47
Abscesses..	84
Gangrene..	1
Oedema..	2

Diseases of the skin, 142.

Erythema..	2
Urticaria..	4
Eczema..	25
Impetigo..	1

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Pruritis..	2
Sycosis..	3
Psoriasis..	1
Herpes..	2
Dermatitis..	1
Acne..	3
Seborrhoea..	2
Chilblain..	1
Ulcers..	29
Boils..	44
Carbuncle..	8
Whitlow..	7
Prurigo..	2
Ringworms..	3
Frost bites..	2
Injuries, 462.	

General injuries, 58.

Burns and scalds..	33
Multiple injuries..	24
Shocks..	1

Local injuries, 404.

Rupture of muscles..	2
Wounds..	4
Fracture of skull..	2
Concussion of brain..	2
Contusion of eyelids..	5
Wounds of eyelid..	2
Wounds of neck..	6
Wounds of chest..	7
Contusion of chest..	3
Fracture of ribs..	18
Sprain of back..	2
Contusion of abdomen..	21
Wounds of upper extremities	92
Sprains of shoulder..	1
Sprain of elbow	2
Sprain of wrist..	16
Sprain of hand	2
Fracture of clavicle..	4
Fracture of humerus..	14
Fracture of radius..	3
Fracture of ulna..	2
Fracture of radius and ulna..	2
Fracture of finger bones..	4
Dislocation of shoulder..	8
Dislocation of phalanges and thumb..	5
Contusion of lower extremities..	76
Sprained hip..	2
Sprained knee..	8
Sprained ankle..	25
Sprained foot..	1

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Fracture of femur.. . . .	8
Fracture of tibia.. . . .	14
Fracture of fibula.. . . .	4
Fracture of tibia and fibula.. . . .	2
Fracture of spine.. . . .	4
Fracture of pelvis.. . . .	1
Fracture of bones of nose.. . . .	2
Fracture of lower maxillary.. . . .	4
Fracture of pattela.. . . .	2
Fractures of bones of foot.. . . .	4
Malingery.. . . .	11
Incomplete reports.. . . .	2
Undiagnosed.. . . .	5

Total number of seamen treated.. . . . 3,012

NUMBER OF VOUCHERS ISSUED FOR EACH PROVINCE.

Nova Scotia.. . . .	665
New Brunswick.. . . .	146
Prince Edward Island.. . . .	56
Quebec.. . . .	113
British Columbia.. . . .	78
General account.. . . .	18

Total number of vouchers.. . . . 1,076

May 31, 1912.

APPENDIX No. 10.

MASTERS AND MATES EXAMINATIONS.

A. JOHNSTON Esq.,

Deputy Minister of Marine and Fisheries,
Ottawa, Ontario.

SIR,—I have the honour to report that during the twelve months ended March 31, 1912, 208 applicants for masters' and 179 applicants for mates' certificates of competency, and 26 applicants for Masters' temporary certificates were examined, and 30 persons underwent the sight tests only, at the various ports and places in Canada; as follows:—

At Halifax, N.S., Captain Luger, Examiner, 22 candidates were examined: 3 for master, 3 for mate and 1 for second mate, sea-going; 3 master, 11 for mate, coasting; and 1 for a temporary certificate. 7 candidates failed: 3 for master and 1 for mate, sea-going; and 1 for master and 2 for mate, coasting. 4 persons underwent the sight tests.

At Yarmouth, N.S., Captain Murphy, examiner, 59 candidates were examined: 9 for master, 5 for mate and 6 for second mate, sea-going; 21 for master and 15 for mate coasting; 2 for master, minor waters, and 1 for a temporary certificate. 11 candidates failed: 1 for master, 1 for mate and 1 for second mate, seagoing; and 4 for master and 4 for mate, coasting.

At North Sydney, N.S., Captain Sutherland, examiner, 11 candidates were examined: 9 for master, and 1 for mate, coasting; and 1 for master, minor water. 6 candidates failed: 5 for master, coasting; and 1 for master, minor waters. 21 persons underwent the sight test.

At Charlottetown, P.E.I., Captain Cameron, examiner, 5 candidates were examined: 1 for master and 1 for mate, coasting; 1 for master, inland; and 1 for master and 1 for mate, minor waters.

At Quebec, Que., Captain Demers, examiner, 13 candidates were examined: 10 for master and 2 for mate, minor waters; and 1 for a temporary certificate. 3 candidates failed: 1 for master and 2 for mate, minor waters. 1 person underwent the sight test.

At Montreal, Que., Captain Riley, examiner, 43 candidates were examined: 2 for mate, coasting; 9 for master and 7 for mate, inland; 18 for master and 4 for mate, minor waters, and 3 for temporary certificates. 4 candidates failed: 1 for master and 1 for mate, inland, and 2 for master, minor waters.

At Toronto, Ont., Captain Moller, examiner, 48 candidates were received: 20 for master and 20 for mate, inland; 5 for master and 3 for mate, minor waters; and 5 for temporary certificates. 21 candidates failed: 8 for master and 7 for mate, inland; and 4 for master and 2 for mate, minor waters.

At Windsor, Ont., Captain McGregor, examiner, 1 candidate was examined for mate, inland.

At Collingwood, Ont., Captain Coles, examiner, 53 candidates were examined: 22 for master and 21 for mate, inland; 5 for master, minor waters; and 5 for temporary certificates. 15 candidates failed: 8 for master and 5 for mate, inland; and 2 for master, minor waters. 1 person underwent the sight test.

At Kenora, Ont., Captain G. P. Phillips, examiner: 4 candidates were examined for temporary certificates.

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At West Selkirk, Man., Captain Thordarson, examiner: 8 candidates were examined, 1 for master and 1 for mate, inland, and 6 for master, minor waters, 2 candidates failed, 1 for master and 1 for mates, inland.

At Edmonton, Alta., Captain Grant, examiner: 1 candidate was examined for mate, minor waters.

At Nelson, B.C., Lieut. Hallett, examiner: 7 candidates were examined, 2 for master and 5 for mate, minor waters; 2 candidates failed, 1 for master and 1 for mate, minor waters.

At Vancouver, B.C., Captain Eddie, examiner: 68 candidates were examined, 2 for master, 6 for mate and 1 for second mate, sea-going; 27 for master and 25 for mate coasting; 2 for master, inland; and 4 for master and 1 for mate, minor waters. 18 candidates failed, 3 for mate, sea-going; 7 for master and 7 for mate, coasting, and 1 for master, inland. 3 persons underwent the sight tests.

At Victoria, B.C., Captain Gaudin, examiner: 50 candidates were examined, 2 for master, 6 for mate and 2 for second mate, sea-going; 17 for master and 21 for mate, coasting; and 2 for mate, minor waters. 7 candidates failed, 4 for mate and 1 for second mate, sea-going, and 2 for mate, coasting.

At Ottawa, Ont., 20 candidates were examined by the chief examiner: 1 for second mate, sea-going; 1 for master, coasting; 2 for master and 1 for mate, inland; 2 for master and 2 for mate, minor waters, and 11 for temporary certificates. 5 candidates failed, 1 for second mate, sea-going; 1 for master and 1 for mate, inland and 1 for master and 1 for mate, minor waters.

Place.	Passed.	Failed.	Total.
Halifax, N. S.	15	7	22
Yarmouth, N. S.	48	11	59
North Sydney, N.S.	5	6	11
Charlottetown, P. E. I.	5	0	5
Quebec, Que.	10	3	13
Montreal, Que.	39	4	43
Toronto, Ont.	27	21	48
Windsor, Ont.	1	0	1
Collingwood, Ont.	38	15	53
Kenora, Ont.	4	0	4
West Selkirk, Man.	6	2	8
Edmonton, Alta.	1	0	1
Nelson, B. C.	5	2	7
Vancouver, B. C.	50	18	68
Victoria, B. C.	43	7	50
Ottawa, Ont.	15	5	20
	312	101	413

I have the honour to be, sir,

Your obedient servant,

H. ST. G. LINDSAY,

Chief Examiner.

MASTERS AND MATES' CERTIFICATES.

During the twelve months ended March 31, 1912, the following grades of certificates were issued to masters and mates: 13 masters' 10 mates' and 8 second mates' sea-going certificates of competency; 61 masters' and 61 mates' coasting certificates of competency; 37 masters' and 37 mates' inland waters certificates of competency; 44 masters' and 15 mates' minor inland waters certificates of competency, and 19 temporary certificates.

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The total amount collected in the way of fees for certificates during the twelve months ended March 31, 1912, was \$3,970, and the amount expended on account of this service was \$7,226.54, an excess of expenditure over receipts of \$3,256.54.

The following statement shows the total receipts and expenditures on account of masters and mates during the last ten years.

		Expenditure.	Receipts.
		\$ cts.	\$ cts.
For the fiscal year ended June 30	1903.....	4,968 36	5,790 50
"	" 1904.....	7,761 17	4,795 00
"	" 1905.....	5,884 74	4,643 85
"	" 1906.....	7,068 15	5,526 00
" ended March 31	1907 (nine months).....	5,934 16	2,294 50
"	" 1908.....	11,508 31	4,306 05
"	" 1909.....	8,244 56	4,192 50
"	" 1910.....	6,662 52	4,314 50
"	" 1911.....	5,801 62	4,446 61
"	" 1912.....	7,226 54	3,970 00
Expenditure.....		71,060 13	44,279 51
Receipts.....		44,279 51	
Excess of expenditure over receipts.....		26,780 62	

List of Sea-going Certificates of Competency issued to Masters and Mates and Second Mates, during the twelve months ended March 31, 1912.

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee
	1911					\$ cts.
3917	April 10	John James Gear.....	Master.....	c/o. M. A. Tait, Irwin St., Nanaimo, B.C..	Yarmouth, N.S...	15 00
3918	" 10	Joseph Everett Faulkner	"	Port Williams, Kings Co., N.S.	"	15 00
3919	" 10	William C. Brodie.....	Mate.....	c/o. Robert McGregor, 11 Broadway, New York.	"	8 00
3920	" 10	William Mogridge.....	2nd Mate.....	26 Broadway, New York, U.S.A.	"	8 00
3921	" 28	Leon O. Everett.....	2nd Mate F. & A. Rig..	Bridgetown, N. S. ...	"	8 00
3922	" 28	John Wilkin Bryant....	2nd Mate S. S. only.	Vancouver, B.C.....	Vancouver, B.C...	8 00
3923	" 28	Robert J. Blair.....	Master.....	Chelsea, Mass.....	Yarmouth, N.S...	15 00
3924	" 28	John Charles Shaw.....	"	16 Gerrish St, Halifax, N.S.	"	15 00
3925	May 16	Joshua Gallop.....	2nd Mate F. & A. Rig. or S. S.	Halifax, N.S.....	Halifax, N.S.....	8 00
3926	" 31	Charles Reid Yeadon..	Mate.....	Gowanlea Elgin Scotland.	Victoria, B.C.....	8 00
3927	" 31	James A. Rice.....	Mate F. & A. Rig. only.	Yarmouth, N. S.	Yarmouth, N.S...	8 00
3928	June 23	Herbert Henry Davies..	Master.....	Elm Bank St., Pauls Gray, England.	Vancouver, B.C...	15 00
3929	" 27	Andrew McDonald.....	Master.....	Yarmouth, N.S.....	Yarmouth, N. S. ...	15 00
3930	" 27	Harold James Symonds.	Master.....	26 Broadway, New York, U.S.A.	"	15 00
3931	July 18	Arthur James Slide....	Mate.....	55 Edgecombe St., Hull, England.	Victoria, B.C.....	8 00
3932	" 24	Arthur Thos. Willoughby.	Master S. S. only.	Vancouver, B.C.....	Vancouver, B.C...	15 00
3933	August 18	John McIntyre.....	Mate.....	"	"	8 00
3934	" 23	Horace Goodacre.....	Mate S. S. only.	New Westminster, B. C.	"	8 00
3935	Sept. 2	James Dalgleish.....	2nd Mate.....	Spencer Place, Leith, Scotland..	Victoria, B. C.	8 00
3936	" 19	David M. Taggart.....	Mate S. S. only.	Lower Onslow, N.S...	Halifax, N.S.....	8 00
3937	Oct. 17	George A. McBride.....	Master.....	Harbourville, N.S...	Yarmouth, N.S...	15 00
3938	Nov. 2	Beecher P. Powell.....	2nd Mate S. S. only.	Yarmouth, N.S.....	Yarmouth, N.S...	8 00
3939	" 6	Hans Peter Christiansen	Master.....	"	"	15 00
3940	" 17	Carl J. R. Kohler.....	2nd Mate.....	Lunenburg, N.S.....	"	8 00
3941	Dec. 27	Arthur Ellis.....	Mate.....	Economy, N.S.....	"	8 00
3942	" 27	Jabez James Hancock...	Master.....	S.S. Schuylkill, New York, U.S.A.	"	15 00
	1912					
3943	Jan. 26	Reginald Rose.....	Master F. & A. Rig. only	Boston, U.S.A.....	"	15 00
3944	Feb. 13	Stanley J. Kaulback....	Mate F. & A. Rig. only..	Mahone Bay, N.S.....	"	8 00
3945	March 22	Hugh C. Warner.....	2nd Mate.....	Bridgewater, N.S.....	"	8 00
3946	" 22	James Alexander Walker	Mate S. S. only.	Vancouver, B.C.....	Vancouver, B.C...	8 00
3947	" 22	Roderick McDonald....	Master S. S. only.	Barra Invernesshire, Scotland.	Victoria, B.C.....	15 00

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LIST of Certificates of Competency issued to Masters and Mates of Inland and Coasting Vessels during the twelve months ended March 31, 1912.—*Continued.*

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1911					\$ cts.
6468	April 3	John Cunningham.....	Master T.C....	Gaudette, P.Q.....	Ottawa, Ont.....	5 00
6469	" 10	Ernest H. Stevenson....	Master.....	Le Pas, N.W.G.....	West Selkirk, Man	15 00
6470	" 10	Thomas Donaldson Bryan.	"	Toronto, Ont.....	Toronto, Ont.....	15 00
6471	" 10	Edmond Groulx.....	Mate.....	Melochville, P.Q.....	Montreal, P.Q....	6 00
6472	" 10	Charles Thrasher.....	Master.....	Alba, Ont.....	"	15 00
6473	" 10	Edward William Ren- shaw.	Mate.....	Summerstown, Ont...	"	6 00
6474	" 10	Edmund Hicks.....	Master.....	Vancouver, B.C.....	Vancouver, B.C....	15 00
6475	" 10	Stanley Maynard.....	Mate.....	Okanagan Landing B. C.	"	6 00
6476	" 10	Carl All.....	Master.....	Nanaimo, B.C.....	Victoria, B.C.....	15 00
6477	" 10	John McLean.....	Mate.....	Victoria, B.C.....	"	6 00
6478	" 10	Gordon Weston.....	Master.....	Richibucto, N.B.....	Yarmouth, N.S....	15 00
6479	" 10	John Dineen.....	Mate.....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6480	" 10	Thomas W. Conron.....	"	Feversham, Ont.....	"	6 00
6481	" 20	Chester Coutts.....	Master.....	New Westminster, B.C	Victoria, B.C.....	15 00
6482	" 20	Ernest Michaud.....	"	Richibucto.....	Yarmouth, N.S....	15 00
6483	" 20	Ernest Michaud.....	Mate.....	"	"	6 00
6484	" 20	Daniel C. Harris.....	Master.....	Gabarus, C.B., N.S..	"	15 00
6485	" 20	Laurence Thompson.....	"	Victoria, B.C.....	Victoria, B.C.....	15 00
6486	" 20	Joseph Lambert.....	"	"	"	15 00
6487	" 20	Dennis P. McCarthy.....	"	Goderich, Ont.....	Toronto, Ont.....	15 00
6488	" 20	Telephore Martin.....	Master T.C....	Point Fortune, P.Q...	Montreal, P.Q....	5 00
6489	" 20	Robert H. Johnston.....	"	Port Carling, Ont.....	Collingwood, Ont.	5 00
6490	" 20	Manford E. Beattie.....	Mate.....	Wickham, N.B.....	Yarmouth, N.S....	6 00
6491	" 20	Stanley Wright.....	Master T.C....	Warton, Ont.....	Collingwood, Ont.	5 00
6492	" 20	Oscar Wannamaker.....	"	Lakefield, Ont.....	Ottawa, Ont.....	5 00
6493	" 20	Joseph Nadon.....	"	Montebello, Que.....	"	5 00
6494	May 1	Lauchlin McKay.....	Mate.....	Jordan Falls, N.S....	Yarmouth, N.S....	6 00
6495	" 1	Asa McLeod.....	"	Bay du Vin, N.B....	Charlottetown, P. E.I.	6 00
6496	" 1	Eldon C. Deware.....	Master.....	St. John, N.B.....	Yarmouth, N.S....	15 00
6497	" 1	James Vincent Norris...	"	Kingston, Ont.....	Montreal, P.Q....	15 00
6498	" 1	Alfred Peter Ross.....	"	Father Point, P.Q...	"	15 00
6499	" 1	John Clarence Hutton...	Mate.....	Vancouver, B.C.....	Victoria, B.C.....	6 00
6500	" 1	John Clarence Hutton...	Master.....	"	"	15 00
6501	" 1	James Darling.....	Mate.....	Collingwood, Ont.....	Totonro, Ont.....	6 00
6502	" 1	Edward Reid.....	"	Bayfield, Ont.....	Collingwood, Ont.	6 00
6503	" 1	Fred Dalby.....	Master.....	Toronto, Ont.....	Toronto, Ont.....	15 00
6504	" 1	Solomon Thompson.....	"	"	"	15 00
6505	" 1	Charles Churchill.....	Mate.....	H.M. C.C. <i>Constance</i> Halifax, N.S.	Halifax, N.S.....	6 00
6506	" 1	Hector Charbonneau.....	Master.....	Sorel, P.Q.....	Montreal, P.Q....	15 00
6507	" 1	Frank Curwin.....	"	Chatham, N.B.....	Charlottetown, P. E.I.	15 00
6508	" 1	Andrew Johnstone.....	"	Vancouver, B.C.....	Vancouver, B.C....	15 00
6509	" 1	Andrew Sinclair.....	Mate.....	"	"	6 00
6510	" 1	Frank Mechan.....	"	"	"	6 00
6511	" 1	George William Frost...	Master.....	Ocean Falls, B.C.....	"	15 00
6512	" 1	Herbert Joseph Hickey.	"	Toronto, Ont.....	Montreal, P.Q....	15 00
6513	" 1	Daniel William Brien...	"	Victoria, B.C.....	Victoria, B.C.....	15 00
6514	" 1	Robert William La Vache.	"	West Arichat, N.S....	North Sydney, N S.	15 00
6515	" 1	Robert William La Vache.	Mate.....	"	"	6 00
6516	" 16	George Ball Naylor....	Master.....	Winnipeg, Man.....	West Selkirk, Man	15 00
6517	" 16	Joseph Goss.....	Master T.C....	Halifax, N.S.....	Halifax, N.S.....	5 00
6518	" 16	Albert F. Stanton.....	"	Port Stanton, Ont.....	Collingwood, Ont.	5 00
6519	" 16	Robert Nelson Anderson	Master.....	Port Elgin, N.B.....	Charlottetown, P. E.I.	15 00
6520	" 16	William John Merchant.	"	Pembroke, Ont.....	Montreal, P.Q....	15 00
6521	" 16	William Victor Bongard	"	Pictou, Ont.....	"	15 00
6522	" 16	Charles Britton.....	Master T.C....	Sturgeon Falls, Ont...	Ottawa, Ont.....	5 00
6523	" 16	Charles McLeod.....	"	Cumberland, Ont.....	Montreal, P.Q....	5 00

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LIST of Certificates of Competency issued to Masters and Mates of Inland and Coasting Vessels during the months ended March 31, 1912.—*Continued.*

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1911					\$ cts.
6524	May 16	William Cooke.....	Master, T.C.	Greville, P.Q.....	Ottawa, Ont.....	5 00
6525	" 16	Albert Simard.....	Master.....	St. Alexis, P.Q.....	Quebec.....	15 00
6526	" 16	Hylas Boudreault.....	".....	Anse St. Jean, P.Q.....	Quebec.....	15 00
6527	" 16	Gedeon Lajoie.....	".....	Chicoutimi, P.Q.....	Chicoutimi, P.Q.....	15 00
6528	" 16	Arthur Gagnon.....	".....	".....	".....	15 00
6529	" 16	Henri Morin.....	".....	St. Henri de Taillon, P.Q.....	".....	15 00
6530	" 16	Willie Deschenes.....	".....	Ste. Anne de Chicoutimi, P.Q.....	".....	15 00
6531	" 16	George Lindsay.....	".....	Roberval, P.Q.....	".....	15 00
6532	" 16	David Pilote.....	".....	St. Alphonse, P.Q.....	".....	15 00
6533	" 16	Joseph Boudreault.....	".....	Anse St. Jean, P.Q.....	".....	15 00
6534	" 29	John Joseph Smith.....	".....	Kamloops, B.C.....	Nelson, B.C.....	15 00
6535	" 29	Harris W. Moore.....	".....	Bear River, N.S.....	Yarmouth, N.S.....	15 00
6536	" 29	Howard Bayers.....	Mate.....	Head of Jeddore, N.S.	Halifax, N.S.....	6 00
6537	" 29	J. A. Daniel Anthony.....	".....	C. G. S. Curlew.....	".....	6 00
6538	" 29	George W. Colwell.....	Master.....	St. John, N.B.....	Yarmouth, N.S.....	15 00
6539	" 29	John Idavain.....	".....	Vancouver, B.C.....	Vancouver, B.C.....	15 00
6540	" 29	John Mitchell.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
6541	" 29	Fred Watts.....	Master T.C.	Collingwood, Ont.....	Collingwood Ont.....	5 00
6542	" 29	Robert Monkhouse.....	".....	Manitowaning, Ont.....	Ottawa, Ont.....	5 00
6543	June 8	John Standly.....	".....	Banff, Alberta.....	Kenora, Ont.....	5 00
6544	" 8	Albert Giroux.....	".....	Kenora, Ont.....	".....	5 00
6545	" 8	Roderick S. McLellan.....	Mate.....	New Westminster, B.C.	Vancouver, B.C.....	6 00
6546	" 8	James Hunter.....	Master.....	Victoria, B.C.....	".....	15 00
6547	" 8	Remi Laforest.....	".....	St. Ignace Loyola, P.Q.	Montreal, P.Q.....	15 00
6548	" 8	William A. Poole.....	".....	Halifax, N.S.....	Halifax, N.S.....	15 00
6549	" 8	Edward Trask Terfry.....	Mate.....	Sommerville, N.S.....	".....	6 00
6550	" 8	C. A. Shephard.....	".....	Georgeville, P.Q.....	Montreal, P.Q.....	6 00
6551	" 14	Charles Edward Prince.....	".....	Vancouver, B.C.....	Vancouver, B.C.....	6 00
6552	" 14	Donald John Morrison.....	".....	Proctor, B.C.....	Nelson, B.C.....	6 00
6553	" 23	Walter Leslie.....	".....	Strathcona, Alta.....	Edmonton, Alta.....	6 00
6554	" 27	Harry S. Miller.....	Master T.C.	Seyn Bridge, Ont.....	Collingwood, Ont.....	5 00
6555	July 4	Harold A. Kelly.....	Master.....	Kippewa, P.W.....	Montreal, P.Q.....	15 00
6556	" 10	William E. Gesner.....	".....	Bridgetown, N.S.....	Yarmouth, N.S.....	15 00
6557	" 10	Arnold Robert Henry.....	Mate.....	Prescott, Ont.....	Montreal, P.Q.....	6 00
6558	" 17	William L. Curry.....	".....	Owen Sound, Ont.....	Collingwood, Ont.....	6 00
6559	" 24	John Wharry.....	Master.....	".....	".....	15 00
6560	" 24	Harry F. Mosher.....	".....	Victoria, B.C.....	Halifax, N.S.....	15 00
6561	Aug. 2	Simon Cimon.....	Master T.C.	Roberval, P.Q.....	Quebec, Que.....	5 00
6562	" 2	Dow Elyea.....	Master.....	Mair's Mills, Ont.....	Collingwood, Ont.....	15 00
6563	" 2	Robert John Bryan.....	".....	Westport, Ont.....	Ottawa, Ont.....	15 00
6564	" 2	George Edward Dicks.....	".....	North Sydney, N.S.	North Sydney, N.S.	15 00
6565	" 2	Israel Desforges.....	Master, T.C.	Calumet, P.Q.....	Ottawa, Ont.....	5 00
6566	" 2	Leslie, Anderson.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
6567	Aug. 2	Richard Joseph Hickey.....	".....	Victoria, B.C.....	".....	6 00
6568	" 18	Daniel McLaine.....	Master.....	Louisburg, C. B., N.S.	North Sydney,, N. S.....	15 00
6569	" 18	Donald Scorgie.....	".....	Vancouver, B. C.....	Vancouver, B. C.....	15 00
6570	" 18	Peter Scott.....	".....	Vancouver, B. C.....	".....	15 00
6571	" 18	Victor Percival.....	Mate.....	Kingston, Ont.....	Montreal, P. Q.....	6 00
6572	" 18	Aime Lacroix.....	".....	Montreal, P. Q.....	".....	6 00
6573	" 18	Pierre Champagne.....	Master.....	Lanoraie, P. Q.....	".....	15 00
6574	" 29	Carl Harmanson.....	Mate.....	Sarnia, Ont.....	Windsor, Ont.....	6 00
6575	" 31	Roderick Campbell.....	".....	Procter, B. C.....	Nelson, B. C.....	6 00
6576	" 31	Eloi J. LeBlanc.....	Master.....	Wedgeport, N. S.....	Yarmouth, N. S.....	15 00
6577	" 31	Benjamin Haines.....	".....	St. John, N. B.....	".....	15 00
6578	Sep. 16	Bartle Patrick McGuirk.....	Mate.....	547 Hillside Avenue, Victoria, B. C.	Victoria, B. C.....	6 00
6579	" 16	Ernest E. Pollard.....	Master.....	Rosemount Rooms, Pender Street, W., Vancouver, B. C.....	Vancouver, B. C.....	15 00

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LIST of Certificates of Competency issued to Masters and Mates of Inland and Coasting Vessels during the twelve months ended March 31, 1912—*Continued.*

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1911					\$ cts.
6580	Sept. 16	Ernest E. Pollard.....	Mate.....	Rosemount Rooms, Pender St. W., Van- couver, B. C.....	Vancouver, B. C..	6 00
6581	" 16	John Guy.....	"	Co. R. C. Elkins, St. John, N. B.....	Yarmouth, N. S..	6 00
6582	" 16	Henry Blothamley.....	"	Victoria, B. C.....	Victoria, B. C....	6 00
6583	" 16	George Harvey Brick- enden	Master T. C.	Charlton, New Ont....	Ottawa, Ont.....	5 00
6584	" 16	Ezra Groleau.....	Master.....	5th St., West, Vancou- ver, B. C.....	Vancouver, B. C..	15 00
6585	" 20	John J. Mulligan.....	Mate.....	1003 McLean Drive, Vancouver, B. C....	"	6 00
6586	" 20	John J. Mulligan.....	Master.....	1003 McLean Drive, Vancouver, B. C....	"	15 00
6587	" 20	Joseph James Ingoldsby	Mate.....	631 Jackson Avenue, Vancouver, B. C....	"	6 00
6588	" 20	Joseph James Ingoldsby	Master.....	631 Jackson Avenue, Vancouver, B. C....	"	15 00
6589	" 20	Christian Martin Knut- son	"	2 St., North, Kenora, Ont.	West Selkirk, Man	15 00
6590	Oct. 19	Charles Theodore Gouin	Master.....	St. Ours, P. Q.....	Montreal, P. Q....	15 00
6591	" 19	James Newman.....	Mate.....	Victoria, B. C.....	Victoria, B. C....	6 00
6592	" 19	Darius Barry.....	Master.....	Vancouver, B. C.....	"	15 00
6593	" 19	John McPhail.....	Mate.....	Victoria, B. C.....	"	6 00
6594	" 19	Peter Laurance Leslie..	"	Victoria, B. C.....	"	6 00
6595	" 19	James Edward Cole.....	"	Port Grenville, N. S..	Yarmouth, N. S.	6 00
6596	" 19	Arthur Swim.....	Master.....	Lockeport, N. S.....	"	15 00
6597	" 19	John Weymouth Trahair	Mate.....	North Vancouver, B. C.....	Vancouver, B. C..	6 00
6598	" 19	John Baillies.....	Master.....	South Vancouver, B. C.....	"	15 00
6599	" 21	Mark Pike.....	"	Victoria, B. C.....	Victoria, B. C....	15 00
6600	Nov. 3	George Albert Graham	Master.....	Denman Island, B. C.	"	15 00
6601	" 17	Carl J. R. Kohler.....	Mate.....	Lunenburg, N. S.....	Yarmouth, N. S..	6 00
6602	" 24	Patrick Campbell.....	Master.....	St. Peters, C. B., N.S.	Charlottetown, P. E. I.	15 00
6603	" 24	Venanzio Martinolick..	"	Port Guichon, B. C...	Vancouver, B. C..	15 00
6604	" 24	Arthur Deschenes.....	Mate.....	Tadouac, Que.....	Montreal, Que....	6 00
6605	Dec. 1	Angus McKinnon.....	"	S. S. 'Slocan, B. C....	Nelson, B. C.....	6 00
6606	" 1	Ovila Lanoue.....	Master.....	Kenora, Ont.....	West Selkirk, Man.	15 0
6607	" 5	John George McEwen...	"	Georgeville, P. Q.....	Montreal, P. Q....	15 00
6608	" 5	Mederic Pilote.....	"	Chicoutimi, Que.....	"	15 00
6609	" 6	Asa Hurst.....	Mate.....	Port Hilford, N. S....	Halifax, N. S....	6 00
6610	" 14	Fritz Johnson.....	Master.....	New Westminster, B. C.....	Victoria, B. C....	15 00
6611	" 14	Fritz Johnson.....	Mate.....	New Westminster, B. C.....	"	6 00
6612	" 14	Hugh Matheson.....	"	Vancouver, B. C.....	Vancouver, B. C..	6 00
6613	" 14	Joseph Hurlung.....	Master.....	New Westminster, B. C.....	"	15 00
6614	" 14	Henry Lytle.....	"	Vancouver, B. C.....	"	15 00
6615	" 14	Henry Lytle.....	Mate.....	Vancouver, B. C.....	"	6 00
6616	" 14	Darius Smith.....	"	Vancouver, B. C.....	"	6 00
6617	" 14	Archie J. McDonald.....	"	Collingwood, Ont.....	Collingwood, Ont.	6 00
6618	" 18	Lauchlin McKay.....	Master.....	Shelburne, N. S.....	Yarmouth, N. S..	15 00
6619	" 18	Augustin A. LeBlanc.....	Mate.....	Church Point, N. S....	"	6 00
6620	" 18	Frederick Joseph Yorke	Master.....	Winnipeg, Man.....	West Selkirk, Man.	15 00
6621	" 18	Arthur Lalonde.....	"	St. Henri, Que.....	Montreal, Que....	15 00
6622	" 21	Edmond Lauzon.....	"	St. Anne de Bellevue, Que.	"	15 00
6623	" 27	Harry Jones.....	"	Vancouver, B. C.....	Vancouver, B. C..	15 00
6624	" 27	John Sears Raymond.....	"	Vancouver, B. C.....	"	15 00
6625	" 27	George Hindman.....	"	Owen Sound, Ont.....	Collingwood, Ont	15 00

LIST of Certificates of Competency issued to Masters and Mates of Inland and Coasting Vessels during the twelve months ended March 31, 1912—*Continued.*

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1911					\$ cts.
6626	Dec. 27	Lezin R. Mallett.....	Mate.....	Yarmouth, N. S.....	Yarmouth, N. S.....	6 00
6627	" 27	Amos Sabean.....	Master.....	Port Medway, N. S.....	".....	15 00
6628	" 27	Henry McGuirk.....	Mate.....	Victoria, B. C.....	Victoria, B. C.....	6 00
6629	" 27	Wilfred Hicks.....	".....	Vancouver, B. C.....	".....	6 00
6630	" 27	Llewelyn Sheppard.....	".....	Victoria, B. C.....	".....	6 00
6631	" 27	Willie Levesque.....	Master.....	Chicoutimi, Que.....	Montreal, Que.....	15 00
6632	" 27	Wallace G. Rockwell....	".....	River Hebert, N. S.....	Yarmouth, N. S.....	15 00
6633	Jan. 2	William G. Bartley.....	Master.....	Winnipeg, Man.....	West Selkirk, Man.....	15 00
6634	" 23	Stewart Noel.....	".....	Victoria, B. C.....	Victoria, B. C.....	15 00
6633	" 23	Stewart Noel.....	Mate.....	Victoria, B. C.....	".....	6 00
6636	" 23	John Daniel McPhee.....	".....	Victoria, B. C.....	".....	6 00
6637	" 23	Frederick Starkey.....	".....	Vancouver, B. C.....	Vancouver, B. C.....	6 00
6638	" 23	Theodule Lepine.....	Master.....	St. Anne de Bellevue, P. Q.....	Montreal, P. Q.....	15 00
6639	" 23	Benson Rowe.....	".....	Vancouver, B. C.....	Vancouver, B. C.....	15 00
6640	" 23	Thomas John Griffiths.....	".....	Vancouver, B. C.....	".....	15 00
6641	" 23	Thomas John Griffiths.....	Mate.....	Vancouver, B. C.....	".....	6 00
6642	" 23	Hugh Alcorn.....	Master.....	Harvey, Albert Co., N. B.....	Yarmouth, N. S.....	15 00
6643	" 23	Edward A. Leblanc.....	Mate.....	Harbour Bouchie, Antigonish Co., N.S.....	".....	6 00
6644	" 23	George Reginald Holland.....	Master.....	Ottawa Ont.....	Ottawa, Ont.....	15 00
6645	" 23	George Reginald Holland.....	Mate.....	Ottawa, Ont.....	".....	6 00
6646	" 23	John Middleton Guild.....	Master.....	Kingston, Ont.....	Montreal, P. Q.....	15 00
6647	" 23	William Henry Phillips.....	".....	Kingston, Ont.....	".....	15 00
6648	" 23	James Cochrane.....	Mate.....	Kingston Ont.....	".....	6 00
6649	" 23	John Mullen.....	Master.....	Kingston, Ont.....	".....	15 00
6650	" 26	Gordon Scott Hopkins.....	".....	Vancouver, B. C.....	Vancouver, B. C.....	15 00
6651	Feb. 13	Donald McKay.....	Mate.....	Okanagan Landing, B. C.....	Nelson, B. C.....	6 00
6652	" 13	William John Kirkwood.....	Master.....	Kingston, Ont.....	Montreal, P. Q.....	15 00
6653	" 13	Edward Mabbs.....	Mate.....	Victoria, B. C.....	Victoria, B. C.....	6 00
6654	" 13	Lawrence Gray.....	Master.....	Victoria, B. C.....	".....	15 00
6655	" 13	Sigvald Salveson.....	".....	Vancouver, B. C.....	Vancouver, B. C.....	15 00
6656	" 13	Sigvald Salvesen.....	Mate.....	Vancouver, B. C.....	".....	6 00
6657	" 13	Richard Smith.....	Master.....	Vancouver, B. D.....	".....	15 00
6658	" 13	Edward Sloane.....	Master.....	Vancouver, B. C.....	".....	15 00
6659	" 13	Edward Sloane.....	Mate.....	Vancouver, B. C.....	".....	6 00
6660	" 13	Ernest F. Raeburn.....	Master.....	Sault St. Marie, Ont.....	Collingwood, Ont.....	15 00
6661	" 13	Joseph A. Arseneau.....	Mate.....	St. John, N. B.....	Yarmouth, N. S.....	6 00
6662	" 13	Herald Stanley Kennedy.....	Master.....	Collingwood Ont.....	Collingwood, Ont.....	15 00
6663	" 13	Frederick Hedderick.....	".....	Windsor, Ont.....	".....	15 00
6664	" 13	Jean Baptiste Leboeuf.....	Mate.....	St. Timothee Beauharnois, P. Q.....	Montreal, P. Q.....	6 00
6665	" 13	Harly Edwin Ingersoll.....	Master.....	Grand Manan, N. B.....	Yarmouth, N. S.....	15 00
6666	Feb. 13	William H. McKinlay.....	Master.....	Hantsport, N.S.....	".....	15 00
6667	" 13	George B. Springer.....	".....	St. John, N.B.....	".....	15 00
6668	" 13	Edgar Wallace Rankin.....	Mate.....	Montreal, P.Q.....	Montreal, P.Q.....	6 00
6669	" 13	Hartford D. Laughlin.....	Master.....	Midland, Ont.....	Collingwood, Ont.....	15 00
6670	" 13	Henry Carr Cartmell.....	".....	Chilliwack, B.C.....	Vancouver, B.C.....	15 00
6671	" 13	James McKenna.....	Mate.....	Vancouver, B.C.....	".....	6 00
6672	" 13	Robert William H. Lloyd.....	Master.....	".....	".....	15 00
6673	" 13	".....	Mate.....	".....	".....	6 00
6674	" 13	Farley Harrison Scanlan.....	Master.....	Port Burwell, Ont.....	Toronto, Ont.....	15 00
6675	" 13	Oscar William Patterson.....	".....	Toronto, Ont.....	".....	15 00
6676	" 13	Thomas Selby Patterson.....	".....	".....	".....	15 00
6677	" 13	Harold Arthur Patterson.....	".....	".....	".....	15 00
6678	" 13	Thompson Campbell.....	Mate.....	Adamsville, Ont.....	".....	6 00
6679	" 13	Henry Branscombe Hunt.....	Master.....	Gore Bay, Ont.....	".....	15 00
6680	" 13	Herbert James Aitken.....	".....	Courtright, Ont.....	".....	15 00
6681	" 13	Ewan McEwan.....	Mate.....	Toronto, Ont.....	".....	6 00

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LIST of Certificates of Competency issued to Masters and Mates of Inland and Coasting Vessels during the twelve months ended March 31, 1912.—*Concluded.*

No. of certificate	Date of certificate.	Name.	Grade.	Address.	Where examination was passed.	Fee.
	1911					\$ cts.
6682	Feb. 19	Paul Tremblay.....	Mate.....	Quebec, Que.....	Montreal, P.Q.....	6 00
6683	" 19	George Stalker.....	".....	Penetanguishene, Ont.	Collingwood, Ont.	6 00
6684	" 19	Gilbert C. Ostrom.....	".....	Owen Sound, Ont.....	".....	6 00
6685	" 19	Ernest Shannon.....	Master.....	Collingwood, Ont.....	".....	15 00
6686	" 19	Frank Waller.....	Mate.....	Victoria, B.C.....	Victoria, B.C.....	6 00
6687	" 19	Robert T. Watters.....	".....	St. John, N.B.....	Yarmouth, N.S.....	6 00
6688	" 26	Bertie Owen Jones.....	Master.....	Vancouver, B.C.....	Vancouver, B.C.....	15 00
6689	" 26	George Findlay.....	".....	Corunna, Ont.....	Ottawa, Ont.....	15 00
6690	" 27	Addison M. Sparling.....	Mate.....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6691	" 27	John H. Solery.....	Master.....	".....	".....	15 00
6692	Mar. 8	Frank A. Garrett.....	Mate.....	".....	".....	6 00
6693	" 8	Walter Jacob Holler.....	".....	Hope Bay, Ont.....	".....	6 00
6694	" 8	Stuart Matheson.....	Master.....	Sault Ste. Marie, Ont.	".....	15 00
6695	" 8	Raymond Mateer.....	Mate.....	Warton, Ont.....	".....	6 00
6696	" 8	William Henry Montgomery.	Master.....	Collingwood, Ont.....	".....	15 00
6697	" 8	William Honsberger.....	Mate.....	Angus, Ont.....	Toronto, Ont.....	6 00
6698	" 8	Joseph Napier.....	".....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6699	" 8	Wilford Jewitt.....	Master.....	Penetanguishene, Ont.	".....	15 00
6700	" 8	Allan Bell Montgomery.	Mate.....	Collingwood, Ont.....	".....	6 00
6701	" 8	John Strong Denton.....	Master.....	Port Dalhousie, Ont.	Toronto, Ont.....	15 00
6702	" 8	Horace Grantley West.....	Mate.....	Toronto, Ont.....	".....	6 00
6703	" 8	William Taylor.....	Master.....	Waubuno, Ont.....	".....	15 00
6704	" 8	John Allan Ewart.....	Mate.....	Toronto, Ont.....	".....	6 00
6705	" 8	Daniel F. Cornett.....	".....	Owen Sound, Ont.....	".....	6 00
6706	" 8	Norman McKay.....	Master.....	".....	".....	15 00
6707	" 8	Adolphe Mallette.....	".....	Oka, P.Q.....	Montreal, P.Q.....	15 00
6708	" 8	Robert Graham.....	Mate.....	Collingwood, Ont.....	Collingwood, Ont.	6 00
6709	" 8	Emmanuel Leduc.....	Master.....	Valleyfield, P.Q.....	Montreal, P.Q.....	15 00
6710	" 8	Arthur Dumas.....	".....	Contrecoeur, P.Q.....	".....	15 00
6711	" 8	Robert Thomson.....	".....	Victoria, B.C.....	Victoria, B.C.....	15 00
6712	" 8	Stephen Kenneth Gray.....	Mate.....	".....	".....	6 00
6713	" 14	Frank Bruce Cameron.....	Master.....	Collingwood, Ont.....	Collingwood, Ont.	15 00
6714	" 14	George Bunting.....	".....	".....	".....	15 00
6715	" 14	John Lean McPherson.....	".....	".....	".....	15 00
6716	" 14	Peter Duncan McDonald.....	Mate.....	Gibraltar, Ont.....	".....	6 00
6717	" 14	Albro E. DeMill.....	".....	Portsmouth, Ont.....	".....	6 00
6718	" 14	Byron Getson.....	".....	LaHave, N.S.....	Halifax, N.S.....	6 00
6719	" 14	Kenneth B. MacLean.....	".....	Margaretville, N.S.....	Yarmouth, N.S.....	6 00
6720	" 14	Neil Percival.....	".....	Vancouver, B.C.....	Vancouver, B.C.....	6 00
6721	" 14	James Roach.....	".....	Southport, P.E.I.....	Charlottetown, P.E.I.	6 00
6722	" 14	Herbert Allen Ormiston.....	".....	Victoria, B.C.....	Victoria, B.C.....	6 00
6723	" 14	Thos. Carr MacDonald.....	Master.....	".....	".....	15 00
6724	" 14	John Blakely.....	Mate.....	Golden, B.C.....	Toronto, Ont.....	6 00
6725	" 14	Charlie Moore.....	".....	Toronto, Ont.....	".....	6 00
6726	" 14	Raymond B. Boutilier.....	".....	".....	".....	6 00
6727	" 14	John Galloway.....	Master.....	Sault Ste. Marie, Ont.	".....	15 00
6728	" 20	Andrew A. D'Eon.....	".....	West Pubnico, N.S.....	Yarmouth, N.S.....	15 00
6729	" 20	Frederick L. Nickerson.....	".....	Yarmouth, N.S.....	".....	15 00
6730	" 20	Claire Armstrong.....	Mate.....	Toronto, Ont.....	Toronto, Ont.....	6 00
6731	" 20	Albert MacDonald.....	".....	".....	".....	6 00
6732	" 20	Robert Laing.....	Master.....	Salem, Ont.....	".....	15 00
6733	" 20	Robert McCreary.....	Mate.....	Toronto, Ont.....	".....	6 00
6734	" 20	Albert Barrett.....	".....	".....	".....	6 00
6735	" 20	Lewelyn Bragg.....	".....	Halifax, N.S.....	Halifax, N.S.....	6 00
6736	" 20	Alban Chapman.....	".....	Ship Harbour, N.S.....	".....	6 00
6737	" 20	Clarence O'Hara.....	".....	Isaacs Harbour, N.S.....	".....	6 00
6738	" 20	James Arthur Nixon.....	Master.....	Vancouver, B.C.....	Victoria, B.C.....	15 00
6739	" 20	John Joseph Flood.....	Mate.....	Victoria, B.C.....	".....	6 00
6740	" 20	Donald Wm. Stewar.....	Master.....	St. Peter's, N.S.....	North Sydney.....	15 00
6741	" 22	John Daigneault.....	Mate.....	St. Zotique, P.Q.....	Montreal, P.Q.....	6 00

APPENDIX No. 11.

MARINE SCHOOLS.

OTTAWA, June 10, 1912.

A. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries,
Ottawa, Ontario.

SIR,—I have the honour to submit the annual report of attendance at lectures, &c., given at the marine schools established at the various ports of the Dominion, under the supervision of the Marine and Fisheries Department.

There have been seven schools, at six of which lectures on Navigation and Seamanship were delivered during the winter, and one at Quebec where candidates were prepared for examinations for masters' and mates' certificates. The latter school was opened for two months, and twenty-two names appear on the attendance list, seven of this number being the only ones qualified as to the service required, passing their examinations. The total attendance at the lectures was 1,733.

There seems to be a gradual falling off in the number of attendance at the lectures as the subjects, although taken from the ordinary work which is pursued in the everyday routine on ships, both coasting and foreign, do not seem to appeal to the young seamen at present, as the lack of education prevents their understanding any of the subjects lectured on, and this probably accounts for the lack of interest in the work shown by the small attendance, and the fact that the lectures were not commenced as early as usual, owing to the possible changes in the personnel of the staff by the proposed re-organization of the examiners.

The result, I am sorry to say, is disappointing, and it will be noted that Vancouver seems to be the only place where the work of the department is appreciated.

The attached statement will show the number of lectures given, and the minimum and maximum, as well as average and total attendance.

I have the honour to be, sir,

Your obedient servant,

H. ST. LINDSAY,

Superintendent.

Schools.	Lectures.	Maximum.	Minimum.	Average.	Total.
Halifax, N.S.....	22	18	2	10.5	231
North Sydney, N.S.....	27	13	2	6.5	172
Yarmouth, N.S.....	26	7	0	4.5	117
Collingwood, Ont.....	22	16	6	12	263
Victoria, B.C.....	25	17	7	9.7	243
Vancouver, B.C.....	34	45	10	20.8	707
Total.....	156	116	27	64	1,733

APPENDIX No. 12.

REPORT OF THE WRECK COMMISSIONER.

April 18, 1912.

A. JOHNSTON, Esq.,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit my annual report of investigations into causes of wrecks and casualties which occurred during the year beginning April 1, 1911, to April 1, 1912.

It will be noted that all casualties during that period necessitating inquiries, have been dealt with either in a preliminary or formal manner.

I have the honour to be, sir,

Your obedient servant,

(Sgd.) L. A. DEMERS,

Wreck Commissioner.

Departmental inquiries during the year.	5
Preliminary inquiries during the year.	45
Formal investigations during the year.	26
Total.	76

Annual report of investigations into wrecks and casualties which occurred to Canadian and Foreign vessels in Canadian waters during the fiscal year 1911-12.

Date of casualty.	Name of ship.	Registered port.	Where casualty happened.	Investigation.	Result.
May 30.	Amur.....	Victoria, B.C.....	Stranded—Wrangle Narrows, Alaska.	Prel., Capt. Gaudin.....	Facts not warranting a formal investigation.
June 28.	Aranmore and General Wolfe.....	Glasgow, G.B.....	Collided off Murray Bay, St. Lawrence river.	Formal, Capt. Demers.	Captain and first officer of <i>General Wolfe</i> had their certificates cancelled for ever.
July 22.	Amethyst.....	Montreal, P.Q.....	Stranded—Cape Mutton, Nfld.	Prel. and formal, Capt. Riley, Capt. Demers.	Captain and mate had their certificates suspended captain for 18 months and mate for 16 months.
Aug. 21.	Alaska and Ionian.....	Sackville, N.B.....	Contravention of Rules of the Road—Bay of Fundy, N.S.	Prel., Capt. Demers.....	Captain of the <i>Alaska</i> severely reprimanded. Court suggested the regulating of length of tows in River St. Lawrence stretches.
Aug. 26.	Albatros and Martin.....	.....	Collided—Georgian Bay.....	Prel., Capt. Coles.....	Formal investigation could not be held.
Jan. 19.	Atlantic and Gasoline.....	Lunenburg, N.S.....	Collided near George Island, Halifax Harbour, N.S.	Prel., Capt. Lugar.....	Facts not warranting a formal investigation.
Mar. 24.	Bruce.....	St. John, Nfld.....	Stranded off Seatarie Island, N.S.	Prel., Capt. Gordon.....	Wreck Commissioner had no jurisdiction to hold formal investigation.
July 16.	Ben Earn.....	Glasgow, G.B.....	Wrecked—Half Moon Rocks, N.S.	Prel. and formal, Capt. Murphy, Capt. Demers.	The master was censured in this case.
Mar. 16.	Bonavista.....	Montreal.....	Wrecked—Black Cove, N.S.	Prel., Capt. Lugar.....	Formal investigation to be held later.
Mar. 30.	Benin.....	.....	Grounded—St. John Harbour, N.B.	Prel., Capt. Lugar.....	Pilot's certificate has been suspended for six months by St. John Pilotage Authority.
Jan. 5.	Caspian.....	Belfast, G.B.....	Grounded—Lake Ontario.....	Prel., Capt. Coles.....	Facts not warranting a formal investigation.
July 14.	Carrigan Head.....	.....	Grounded—Barnaby Island P.Q.	Prel. and formal, Capt. Riley, Capt. Demers.	Pilot A. T. Simard, of Quebec Pilotage Authority warned for an error of judgment.
Aug. 3.	Cambodia.....	Grimsby.....	Stranded—Flag Island.....	Prel., Capt. Lugar.....	Facts not warranting a formal investigation.
Oct. 12.	Celtic.....	Vancouver, B.C.....	Stranded—Noble Island, Goltas Channel	Prel. and formal, Capt. Gaudin.	Mate's certificate was suspended for four months.
Aug. 26.	Clark and Leonore.....	.....	Collided—Toronto harbour....	Formal, Capt. Demers.	Owner of Leonore found responsible for collision and condemned.
Oct. 6.	Corunna.....	Gloucester, U.S.A.....	Stranded—Mersey River, N.S.	Formal, Capt. Demers.	Master and mate had their certificates suspended; master for four months and mate for one year.
May 1.	Daigle.....	.....	Wrecked—River St. John, N.B.	Prel., Capt. Demers.....	Facts not warranting a formal investigation.
May 10.	Davidson, A. D.....	.....	Stranded—Lachine Lake, P.Q.	Prel., Capt. Riley.....	Facts not warranting a formal investigation.
Oct. 17.	Emperor.....	Midland, O.....	Sank—Sault St. Mary, Ont.	Formal, Capt. Demers.	Officers exonerated.
Oct. 25.	Electra.....	Charlottetown, P.E.I.....	Stranded—Margaree Island, N.S.	Prel., Capt. Lugar.....	Facts not warranting a formal investigation.
Apr. 1.	Firefly and King Edward.....	.....	Collided—Fraser River.....	Prel. and formal, Capt. Eddie, Capt. Gaudin.	Captains of both vessels were severely reprimanded.
July 6.	Guide and Cape Breton.....	Lunenburg, N.S.....	Collided—Halifax Harbour....	Prel., Capt. Lugar.....	Formal investigation could not be held.
Nov. 8.	Gaspeian.....	Quebec.....	Stranded—Ste. Anne des Monts P.Q.	Prel., Capt. Riley.....	Facts not warranting formal investigation.

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June 5.	Helvetia and Cascapedia			Contravention of Rules of the Road.	Prel., Capt. Riley.	Facts not warranting formal investigation.
June 29.	Heathcote.	Sydney, N.S.		Grounded—Entrance of Bras-d'Or.	Prel., Capt. Gordon.	Facts not warranting formal investigation.
Mar. 20.	Heathcote and Malmstad.	Sydney, N.S., Norway.		Collided—Louisburg Harbour.	Prel., Capt. Lugar.	Formal investigation to be held later.
Aug. 20.	Hero and Chieftain III.			Collided off St. Antoine Light, St. Lawrence River.	Formal, Capt. Demers.	Pilot Hamelin (not licensed) of <i>Chieftain III</i> , censured. Master of <i>Chieftain</i> had his certificate suspended for two years.
Oct. 23.	Hallowdan.			Stranded—Fourchu Head, C.B.	Prel., Capt. Lewis.	Facts not warranting formal investigation.
Apr. 10.	Iroquois.	Victoria, B.C.		Capsized off Shell Island, B.C.	Prel. and formal, Capt. Eddie, Judge Martin.	Master's certificate cancelled; mate's certificate suspended for six months and engineer's certificate suspended for nine months.
Aug. 20.	Ida May.			Grounded near Orleans Island, P.Q.	Formal, Capt. Demers.	Pilot I. Noel, of Quebec Pilotage Authority, fined
Sept. 26.	Isle Worth.			Grounded near Long Point, P.Q.	Prel., Capt. Riley.	Facts not warranting formal investigation.
Mar. 14.	Isleworth.	London.		Foundered—Chebucto Head, N.S.	Prel., Capt. Lugar.	Facts not warranting formal investigation.
June 5.	le D'Estrie.			Stranded—Halifax Harbour.	Prel., Capt. Lugar.	Wreck Commissioner no jurisdiction to hold formal investigation.
Sept. 20.	Lake Manitoba and Cornuana.	Liverpool.		Collided—Montreal Harbour.	Prel., Capt. Riley.	Formal investigation could not be held.
Oct. 27.	Lake Champlain.	Liverpool.		Grounded off Longueuil Reef, P.Q.	Formal, Capt. Demers.	Pilot Albert Gagnon, of Montreal Pilotage Authority, censured.
June 2.	Manchester Spinner.	Manchester.		Stranded off White Island Reef, St. Lawrence River.	(Prel. and formal, Capt. Riley, Capt. Demers.	Pilot Phileas Lachance, of Quebec Pilotage Authority, fined. Second officer also warned.
July 5.	Morien.	Liverpool.		Grounded—Bulls Bluff, N.S.	Prel. and formal, Capt. Lugar, Capt. Demers.	Master has been censured in this case.
Sept. 12.	Morien.	Liverpool.		Grounded—Bay of Fundy, N.S.	Prel., Capt. Lugar.	Facts not warranting a formal investigation.
Mar. 26.	Monitor and Fingal.			Collided—Prospect Point, B.C.	Prel., Capt. Eddie.	Facts not warranting a formal investigation.
Mar. 28.	Margaret.			Stranded near Pope's Harbour, N.S.	Prel., Capt. Lugar.	Facts not warranting a formal investigation.
Oct. 23.	Noname and Iroquois.			Collided—Fraser River.	Prel. and formal, Capt. Eddie, Capt. Gaudin.	Master of <i>Noname</i> has been reprimanded.
Jan. 6.	Osamo and Yarmouth.	Yarmouth, N.S.		Collided—St. John Harbour.	Prel. and formal, Capt. Murphy, Capt. Demers.	Captains of both ships were censured.
Oct. 14.	Princess Beatrix.	Victoria, B.C.		Stranded—Noble Island, B.C.	Formal, Capt. Gaudin.	Mate's certificate suspended for six months.
Jan. 20.	Queen and Colomb.	Quebec, Quebec.		Collided—Quebec Harbour.	Prel., Capt. Riley.	Captain of <i>Colomb</i> was reprimanded and ordered to undergo a sight-test examination.
Dec. 12.	Queen City.	Victoria, B.C.		Grounded—Barclay Sound, B.C.	Formal, Capt. Gaudin.	Chief officer Alex. Thompson cautioned. Was found guilty of an error of judgment.
Sept. 19.	Record.			Stranded—Main-a-Dieu.	Prel., Capt. Gordon.	Wreck Commissioner has no jurisdiction to hold formal investigation.
Mar. 24.	Schelt.	Vancouver, B.C.		Capsized—Sooke Harbour, B.C.	Prel. and formal, Capt. Eddie, Judge Martin.	Remarks made by Court for the betterment of the steamboat inspection.
May 5.	Stormont.	Montreal.		Grounded off Long Point, P.Q.	Prel. and formal, Capt. Riley, Capt. Demers.	Pilot F. X. Rivard, of Montreal Pilotage Authority, had his branch certificate suspended for six months.
June 16.	Sinbad.	Newcastle.		Grounded—Lachance Point, Saguenay River.	Prel. and formal, Capt. Riley, Capt. Demers.	Pilot L. H. Lapierre, of Quebec Pilotage Authority, reprimanded.

Investigations into Wrecks and Casualties which occurred in Canadian waters—*Concluded.*

Date of casualty.	Name of ship.	Registered port.	Where casualty happened.	Investigation.	Result.
Sept. 30.	Strathlorne.....	.....	Stranded—Cheticamp Harbour, C.B.	Prel., Capt. Lugar.....	Facts not warranting a formal investigation.
Dec. 27.	St. Pierre Miquelon and Renwick.	Newcastle.....	Collided off Green Island, N.S.	Formal, Capt. Demers..	Captain of <i>St. Pierre Miquelon</i> found responsible for collision and reported to French Consul.
Jan. 25.	Storm King.....	Vancouver, B.C.....	Sank near Lund, B.C.....	Prel., Capt. Eddie.....	Master and engineer of <i>Renwick</i> warned.
Mar. 21.	Storm King and Royal City.	.....	Collided—Dusk, B.C.....	Prel., Capt. Eddie.....	Facts not warranting formal investigation.
Feb. 2.	Titania.....	.....	Grounded—Stuard Island.....	Prel., Capt. Eddie.....	Facts not warranting formal investigation.
Nov. 17.	Turret Cape.....	Newcastle.....	Stranded near Cove Island, Lake Huron.	Formal, Capt. Demers..	Captain's certificate suspended for three months.
Sept. 17.	Venture.....	Glasgow.....	Grounded—Pender Island, B.C.	Prel. and formal, Capt. Eddie, Capt. Gaudin..	Master's certificate suspended for six months and mate's certificate for four months.

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APPENDIX No. 13.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
Apr. 16--	A. K. Maclan. 116,539	5	Lunenburg, N.S.	Schr. wood	176	Lunenburg-St. John, Nfld.	Off St. Esprit, C.B.	Foundered. Master F. Remby		Total loss, \$8,000
Jan. 7..	Alva.....	1	Halifax, N.S.	Schr. steel steam	48	Dartmouth G. B.-Halifax, N.S.	Off Halifax Harbour	Struck sunken wreck		Part. loss, \$2,680
Mar. 16..	Archie Crowell. 112,060	21	Shelburne, N.S.	Schr. wood sail	175	Barbadoes-Portland, Me.	Lat. 40-00 N. Long. 71-20 W N. Atlantic	Loss of sails		Part. loss.
Apr. 25..	Advance. 112,060	9	Windsor, N.S.	Schr. wood sail	294	Moss Pt. Miss.-St. Vincent, W.I.	Long. 60-40 W Lat. 25 N Atlantic	Loss of sails Master Geo. H. Irving.		Part. loss.
May 22..	Agonaire.....			Bgte. wood sail	125	St. Pierre Miq.-Magd. Island.	20 miles S. of Magd. Island.	Collided		Total loss.
Apr. 6..	Alkalins. 103,731	14	Parrsboro, N.S.	Bgte. wood sail	626	Philadelphia.....	South Greenland	Stranded Mt. Chs. Jensen.		Total loss.
May 30..	Amur. 98,073	21	Victoria, B.C.	Schr. steel steam	517	Victoria, B.C.-Skagway.	56' 39 N. 122' 55 W. Wrangle Narrows. Alaska.	Stranded Mt. L. P. Locke.		Part. loss.
July 28..	Aranmore. 98,579	20	Glasgow, G.B.	F & A. iron steam	499.86	Quebec-Esquimaux Pt.	Off Murray Bay St. Lawrence Riv.	Collided Mt. J. Hearn.		Part. loss.
July 22..	Amethyst. 79,042	33	Montreal.....	Schr. iron steam	894	Montreal-St. John, Nfld.	Cape Mutton, Nfld.	Stranded Mt. O. C. Bernier.		Total loss.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911—*Continued*.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Reg- ister Ton- nage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
July 28..	Axa..... 130,341	New	Charlottetown, P.E.I.	Wood gas line	5		Northumberland St. P.E.I.	Burnt.....	.....	Total loss.
July 13..	Abeona..... 100,828	18	Bridgetown, Bdos	Byte..... wood sail	499	Salt Can.—Provi- dence, U.S.A.	Turks Island, Atlc.	Leaking..... Mt. C. E. Byrnes.	.....	Part. loss.
Aug. 5..	Alaska..... 77,897	27	Sackville, N.B....	Schr..... wood sail	118	Newark, N.J.— Eatonville, N.S	Bay of Fundy.....	Stranded.....	.....	Part., \$300.
Nov. 19..	Atkelia.....	14	Parrsboro, N.S....	Schr..... wood sail	40	Parrsboro-Avonport	Minas Basin, N.S....	Loss of sails.....	.....	Part., \$150.
Nov. 16..	Arthur D. Storey.	26	Gloucester, U.S.A.	Schr..... wood sail	75	Gloucester Fishing Grounds.	Lahave Bank, N.S.	s of sails..... Mt. Wm. Sloan.	.....	Part., \$100.
Nov. 19..	Arkona.....	11	Gloucester U.S.A.	Schr..... wood sail	98	Gloucester— Gloucester.	Bay of Fundy.....	Loss of rudder and main gaff, master N. Wharton.	.....	Part., \$150
Dec. 17..	Avon..... 94,724	23	Halifax, N.S.....	Schr..... wood steam	41-29	Ingram Port-Hali- fax, N.S.	Halifax Har.	Foundered..... Mt. J. P. Murphy.	.....	Part., \$1,500.
Dec. 24..	Ambition..... 112,101	9	Lunenburg, N.S....	Schr..... wood sail	99	Halifax-St. Jacques, Nfld.	St. Pierre, Miq.	Loss of sails..... Mast. Albert D. Dyett.	.....	Part., \$200.
Nov. ..	Arkansas..... 116,499	8	Lunenburg, N.S....	Schr..... wood sail	98-32	Grand Bank, Nfld— Gibraltar.	Atlantic, O.	Missing..... 6 lives lost	6	Total, \$21,500.

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Mar.	7.	Boston.	6	Norway.	Schr.	738	Jamaica, W.I.—Halifax, N.S.	Atlantic, O.	Deck fittings swept away.	Part., \$800.
Feb.	1.	B. B. Hardwick.. 100, 018	14	Annapolis, N.S.	Schr.	123	Port Clyde, N.S.	New Jersey, U.S.A.	Explosion on lighter at pier.	Part., \$300.
Mar.	22.	Bruce..... 106, 391	14	St. John, N.H.	sail	343	Port au Basque N.H.—Louisburg, N.S.	Off Scattarie, Isl., N.S.	Stranded. life lost	1 Total loss.
July	16.	Ben Earn..... 129, 466	16	Glasgow	steel steam	2, 661	Glasgow—St. John, N.B.	Half Moon Rock, Salvages, N.S.	Stranded. Mast. H. L. Lockhart.	Total loss.
Apr.	8.	Beatrice..... 94, 362	22	Pictou, N.S.	Schr. steel steam	353	Portland, Met.—Westport, N.S.	Hampton, Road, Va U.S.A.	Listed to Port. Mt. E. W. Hickey	No damage.
July	28.	B. B. Hardwick.. 100, 018	14	Annapolis, N.S.	Schr. wood sail	123	Clementsport, N.S.—Boston, Mass.	110 E. Cape Ann N. Atlantic.	Yawl damaged Mt. J. N. Berry.	Part., loss.
Aug.	22.	Blew Wave..... 80, 370	31	Parrsboro, N.S.	Schr. wood sail	37	Parrsboro, N.S.—Windsor, N.S.	Cobequit Bay, N.S.	Stranded. Mt. Geo. Bullward	Total, \$300.
Aug.	23.	Beaver..... 100, 056	20	St. John, N.B.	Schr. wood sail	192	Descousse, C.B.—Boston, Mas.	Boston Har.	Stranded. Mt. E. Pettipas.	Part.
Dec.	2.	Bengore Head..... 90, 107		Belfast.	iron steam	1, 619	Montreal—Belfas.	Lake St. Peter St. Lawrence Riv.	Grounded. Mt. J. C. Hoy.	No damage.
Oct.	13.	Beaver..... 100, 056	20	St. John, N.B.	Schr. wood sail	192	Liverpool, N.S.—Boston, Mass.	Off Cape Sable.	Loss of sails. Mt. E. Pettipas.	No damage.
Oct.	9.	Beatrice..... 114, 032	10	St. John.	Bgte. wood sail	98	Venison Isl.—Gibraltar.	51-30 N. 37-06 W. Atlantic.	Watercocks carried away Mast, Thos. Fitzgerald.	No damage.
Sept.	13.	Batoum..... 102, 786	18	London, G.B.	Schr. iron steam	2, 121	Port Arthur, U.S.A.—Belfast, G.B.	Near Halifax, N.S.	Furnaces leaking. Mt. W. H. Luckhan.	Part., \$1, 000.
Nov.	25.	Berwindmoore.... 131, 294	1	Liverpool, G.B.	Str. steel steam	2, 702	New Castle, G.B.—Philadelphia.	60 miles off Sable Isl	Rudder broken. Mast. H. J. Stanbridge.	Part., \$1, 500.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911—Continued.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
Dec. 15.	British Columbia. 119,963	8	Glasgow.....	Schr..... steel steam	219	Ladysmith-Union Bay.	Canor Rock Portiers Pass.	Struck logs. Mt. G. Falconer.	.....
Nov. 3.	Bessie Dollar..... 121,272	5	Victoria, B.C.....	4 Masts..... steel steam	2,797	San Francisco-Union, B.C.	Everett Har.....	Stranded. Mt. C. H. Cross.	.....
Dec. 14.	Belmont..... 98,630	20	Yarmouth, N.S.....	Bqe..... steel sail	1,415	Boston, Mass.-Barradoes.	S. Atlantic Oc.....	Collided..... Mt. F. A. Ladd.	.....	Part.
Feb. 2.	Comrade..... 25,325	11	Port Angeles, U.S.A.	wood gas ne.....	9	Seattle, Wash.-Ketchikan, Als.	Cliff Isl., B.C.....	Burnt.....	.....	Total.
Mar. 18.	Czar..... 103,907	14	Victoria, B.C.....	Tug wood steam	93	Union Bay, B.C.-Vancouver, B.C...	Vancouver.....	Stranded..... Mt. F. R. Springall.	.....	Part., \$2,500.
Dec. 11.	Carondelet..... 125,077	38	American.....	Schr..... wood barge	1,314	Ladysmith-Prince Rupert	Near Prince Rupert, B.C.	Foundered. Mt. H. A. Freig.	.....
Sept. 8.	Cronarty.....	19	New Castle on Tyne, G.B.	on Schr..... steel steam	S 1,75	St. John, N.B.-Halifax, N.S.	Bay of Fundy, N.S.	Slide rod broken. Mt. G. W. Robinson.	.....	Part., \$100.
Jan. 27.	Contre Amiral Caubet	36	Havre, France.....	iron steam	1,137	Halifax, N.S.-Halifax, N.S.	Off Sable Isl. Alt. Oc.	Damaged by ice.....	.....	Part., \$200.
July 23.	Charlotte..... 85,642	28	Lunenburg, N.S.....	Schr..... wood sail	79	Louisburg N.S.-Port Mouton, N.S.	Port Mouton, N.S...	Struck rocks..... Mast, M. R. Williams.	Total, \$1,900.

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July	7.	Coral Leaf..... 112,323	9	Bridgetown Barbados	Schr. wood sail	374	New York-Yar- mouth, N.S.	Yarmouth Har.....	Stranded. Mt. E. Speier.	Part., \$1,500.
June	29.	Collector..... 107,122	12	Lunenburg, N.S.	Schr. wood sail	99	Gaspe-Barbadoes.....	Lat. 34 N. Long. 35-12 N. Atlantic Oc.	Sprung a leak. Mt. E. Wilkie.	Part., loss.
Sept.	3.	Corona..... 127,544	10	Gloucester, U.S.A.	Schr. sail wood	82	Halifax, N.S.- Souris, P.E.I.	Mersey Riv., N.S.	Stranded. Mt. E. T. Eng- strom.	Part., \$1,000.
Aug.	5.	Cambodia..... 132,094	6	Grimsby.....	Ketch. steel steam	115	Canso, N.S.-Canso, N.S.	Flag Isl.....	Stranded. Mt. M. Olison. 2 lives lost	Part., \$1,000.
Nov.	14.	Chemainus..... 1,122		Victoria, B.C.	Sloop. wood steam	71	Union Bay, V.C.- Vancouver, B.C.	Coal Har.....	Fire in engine room. Mt. N. Bonde.	
June	15.	Carrigan Head..... 113,508		Belfast, G.B.	— — — steel steam	2,717	Quebec-Belfast.....	Barnaby Isl., P.Q.	Stranded. Master F. Evers.	
Oct.	3.	Celtic..... 122,538	4	Vancouver, B.C.	Sloop wood steam	163	Vancouver, B.C.- Prince Rupert, B.C.	Lat. 50-49 N. Long. 127-35½ W.	Stranded. Master A.N. Dick	Part., \$1,800.
Dec.	28.	Carrie C..... 123,989	28	Gloucester, N.S.	Schr. wood sail	71	Gloucester, N.S.- Liverpool, N.S	Lahave Bank, N.S.	Loss of sails. Master P. Cox.	Part., \$250.
Oct.	7.	Coral Leaf..... 88,954	9	Bridgetown, Bar- bados.	Schr. wood sail	374	Spencer Isl., New York.	Mattinicook Pt.- Long Island.	Stranded. Master G. D. Speier.	Part., \$600.
Dec.	3.	Croydon..... 108,303	14	Glasgow, G.B.	Str. steel steam	381			Heavy list.....	No damage.
Jan.	14.	Dorothy Duff..... 117,164	4	Sydney, C.B.	Schr. wood sail	152	Sydney, C.B.-Car- bonneau, Nfld.	Off Cape St. Francis Nfld.	Loss of sails.....	Part.
June	16.	Dara C..... 111,671	10	Bridgetown, Barbados.	Schr. wood sail.	402	New York-Cuba.....	Lat. 34-40 and 27-40 N. Long. 68-40 and 72-45 W.	Loss of sails.....	Part., \$800.
June	24.	Delta..... 100,277	19	Windsor, N.S.	Schr. wood sail	287	Pascagonla-Belize, B.H.	Belize Harbour.....	Stranded. Master G. O. Sherman.	No damage.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911—*Continued.*

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
June 19.	Danarsland..... 112,340	9	Liverpool, N.S.	Schr. Wood Sail	199	Barbados-St. John, N.B.	Lat. 18-5 N. Lg. 60-29 W. Atl. Ocean.	Abandoned at sea. Master G. N. Dean.		Total loss.
June 5.	Drummuir..... 86,233	29	Victoria, B.C.	Bge. Iron Sail	1,798	Port Townsend, W.S. - Newcastle.	Lat. 40-53 S. Lg. 69-22 E. Indian Oc.	Loss of spars.		Part., \$700.
July 13.	Drummuir..... 86,233	29	Victoria, B.C.	Bge. Iron Sail	1,798	Port Townsend-Newcastle.	Off Coogee, N.S.W.	Collided. Master D. R. Fleming.		Part., \$200.
Oct. 27.	Daglid.....		Christiania, Norway.	Schr. Iron Steam	788		Chatham, N.B.	Fire in forecandle. Master H. Olsen.		Part., \$1,000.
Oct. —	Dorothy Louise..... 126,662.	1	Shelburne.	Schr. Wood Sail	125-49	Grand Bank-Grand Bank.		Missing. 6 lives lost	6	Total, \$12,500.
Feb. 2.	Ethelwold..... 95,584.	21	Montreal.	Schr. Steel Steam	533	St. Michael, Azores-Portland, G.B.		Sprung a leak. Master John Mitchell.		Part.
Feb. 24.	Evelyn..... 103,794.	12	Charlottetown, P.E.I.	Schr. Wood Sail	166	St. John, Nfld.-Pernambuca.	Lat. 32-52 N. Lg. 36-06 W.	Loss of bowsprit.		Part.
Mar. 7.	Emma R. Smith..... 85,439.	28	Windsor, N.S.	Bge. Wood Sail	371	Mobile-St. John, N.B.	Gulf Stream.	Leaking and loss of deck load.		Part.
June 6.	Ellen C. Burke..... 137,019.	9	Boston, Mass.	Schr. Wood Sail	60	Boston, Mass.-Fishing Grounds.	E.S.E. of Sambro, N.S.	Collided. Master James O'Brien.		Part., \$12,000.

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July	5.	Evolution..... 94,855.	22	Parrsboro, N.S.....	Schr. Wood Sail	173	Port Wade, N.S.- Port Wade, N.S.	Digby Gut, N.S.....	Collided..... Mt. E. M. Baird.	Part., \$500.
July	28.	Emma E. Potter. 57,476.	41	Annapolis, N.S.....	Schr. Wood Sail	98	Clementsport- Boston, Mass.	15 miles of Pitman Light, U.S.A.	Loss of sails.....	Part.
July	28.	EWily Anderson.. 116,554.	5	Maitland, N.S.....	Schr. Wood Sail	218	Maitland, N.S.- Philadelphia.	40 miles E. of Cape Cod.	Loss of deck load and sails.	Part.
Sept.	6.	Empress..... 107,761.	10	Charlottetown, P.E.I.	Schr. Wood Sail	335	Chatham, N.B.- Charlottetown, P.E.I.	Charlottetown Harb.	Stranded..... Mt. Sam Buchanan.	Part.
July	28.	E. Merrian..... 89,395.	9	Parrsboro, N.S.....	Schr. Wood Sail	331	St. John, N.B.- New York.	10 miles S.W. Machi- as Seal Is.	Cabin flooded.....	Part.
July	16.	Ellen E. Burke..... 137,019.	9	Boston, Mass.....	Schr. Wood Sail	60	Gloucester, U.S.A.- Fishing Grounds.	L'Ardoise, N.S.....	Stranded..... Mt. Jas. O'Brien.	Part.
Sept.	7.	Elva M..... 103,424.	16	Charlottetown, P.E.I.	Schr. Wood Sail	92	Bay of Islands, Nfld- Sydney, C.B.	Bay of Islands, Nfld.	Ashore.....	Total loss.
Oct.	25.	Electra.....	24	Charlottetown, P.E.I.	Schr. Wood Steam	78	Pictou-Pictou.....	Margaree Harb.....	Stranded..... Mt. W. A. Beattie.	Total loss.
Nov.	16.	Effie May..... 116,512.	7	Lunenburg, N.S.....	Schr. Wood Sail	49	Pictou-Halifax.....	Port Hood Harb.....	Stranded..... Mt. Wm. J. Nauss	Total loss, \$2,500.
Nov.	4.	Elsie Bradford..... 100,802.	16	Victoria, B.C.....	Schr. Wood Gasol.	10	Nanaimo, B.C.....	Near Entrance Is.....	Foundered..... Mt. A. Bratford.	Total loss \$6,000.
Nov.	19.	Evolution..... 94,855.	22	Parrsboro, N.S.....	Schr. Wood Sail	175	Noel, N.S.	Gloucester Harb., Mass.	Collided..... Mt. E. M. Baird.	
Dec.	30.	Emulator..... 107,123.	12	Lunenburg, N.S.....	Schr. Wood Sail	92-13	Sydney, N.S.- St. Pierre Mig.	Danzig Pt.....	Stranded..... Mt. Albert Purdy.	Total, \$3,000.
Apr.	23.	Flora..... 90,654.	25	Liverpool, N.S.....	Schr. Wood Sail	64	Louisburg, C.B.- Halifax, N.S.	Egg Island, N.S.....	Sprung a leak.....	Total, \$1,500.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911—Continued.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
May 12..	Flora M. 117,163.	5	Windsor.....	Schr. Wood Steam	152	Walton, N.S.—Portland.	20 miles S.S.E. of Elizabeth, Me.	of Sprung a leak.. Mr. D. W. Merriam.	.....	Part.
.....	Foster Rice 107,602.	12	Annapolis, N.S....	Schr. Wood Sail	179	Azera, D.R.—San Juan, Porto Rico.	Puerto Viego, Caribbean Sea.	—, Mt. Pitman.....	.....	Total.
Aug. 21..	Flora M. 117,163.	5	Windsor, N.S.....	Schr. Wood Sail	152	Hantsport, N.S.—Vineyard Haven.	Off Cape Blondin, Minas Basin, N.S.	Stranded. Mt. L. Mimana.	.....	Part., \$700.
June 20..	F. G. French 126,718.	24	St. John, N.B.....	Schr. Wood Sail	181	Apple River, N.S.—Boston, Mass.	Coast of Maine.....	Loss of sails.....	.....	No damage.
Nov. 13..	Flora T. 90,737.	2	Charlottetown, P.E.I.	Schr. Wood Sail	.....	Port Elgin, N.S.—Charlottetown, P.E.I.	Baie Verte, N.B.....	Stranded Mt. Chas. Trenholme.	.....	.....
Dec. 18..	Flamingo 91,527.	17	Yarmouth, G.B...	—, Steel Steam	134	Vancouver, B.C.—Fishing Grounds.	Tolmie Channel.....	Tail shaft broken and propeller lost. Mt. A. Freeman.	.....	Part., \$3,500.
Jan. 10..	Grace Darling, 111,747.	9	Lunenburg, N.S...	Schr. Wood Sail	100	Lunenburg, N.S.—Canso, N.S.....	Glace Bay, N.S.....	Stranded.....	.....	.....
Jan. 11..	Greta 107,972.	12	Dorchester, N.B.	Schr. Wood Sail	146	St. John, Nfld.—Pawtucket, U.S.A.	Cross Isl. Narrows, U.S.A.	Stranded.....	.....	Part., \$1,000.
June 28..	Gauges 121,763.	5	Vancouver, B.C...	—, Wood Gaso. F. & A. Iron Steam	15	Vancouver, B.C.—Sydney, B.C.	Gauges Harb.....	Burnt. Mt. G. L. Mowat.	.....	Total, \$3,000.
June 28..	General Wolfe 129,209.	20	Hull, G.B.....	.....	385	Quebec-Quebec..—	Off Murray Bay, P.Q.	Collided. Mt. I. Young.	.....	Total.

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911.—*Continued.*

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Feb. 1.	Helen Stewart... 116,943.	8	Lunenburg, N.S.	Schr. Wood Sail	180	St. John, Nfld.—Barbadoes.	Coast of Brazil.....	Stranded..... Mt. Geo. Berg.	Part.
Apr. 25.	Hieronymus..... 112,064.	6½	Windsor, N.S.	Schr. Wood Sail	417	Pasagonla-Kington, Jamaica.	Gulf of Mexico.....	Foundered..... Mt. E. Wood.	.....	Total, \$22,000.
Aug. 20.	Hero.....	8	Bergen, Norway	Schr. Steel Steam	1,081	Montreal-Pictou, N.S.	St. Lawrence River.	Collided..... Mt. O. F. Olsen.	.....	No damage.
June 23.	Hermod.....	8	Drammen.....	2 mts. Steel Steam	1,928	Sydney, N.S.—Three Rivers, Que	2° N. from Clory-dorm Pt., P.Q.	Bottom damaged..... Mt. A. Gabrietu.	.....	Part., \$20,000.
Oct. 23.	Haloodan.....	6 mos.	Drammen.....	Schr. steel steam.	2434	Chili..... Montreal.	Fourchu Hd. C.B.	Stranded.....	.....	Part.
Sept. 29.	H. M. S..... 122,037	42 yrs	Weymouth, N.S.	Schr. wood sail	139	Liverpool..... N.S.	.....	Deck swept way in gale.	.....	Part.
May 4.	Hallic Muriel..... 100,888	17	St. John, N.B.	Schr. Wood Sail	85	River Hebert—St. John, N.B.	Grindstone Island Cove.	Total wreck. Mt. Geo. S. Seely.	.....	Total.
Nov. 28.	Howard D.....	4	Port Townsend, U.S.A.	Schr. Wood Gaso.	8	Port Townsend—Victoria, B.C.	Victoria wharf.....	Damaged by fire. Mt. W. W. Primrose.	.....	Part. \$1,200.
Dec. 29.	Hibernia..... 100,347	10	Matland, N.S.	Schr. Wood	298	Hantsport, N.S.—Barbados	Lat. 38 N. Lg. 62-50 W. Atl. Ocean.	Abandoned at sea. Mt. Chs. Dade.	Total.

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Nov.	17..	Henriette, 112, 254	35	Vancouver, B.C.	Schr. Iron Steam	99-76	Halifax, N.S.- Popes Harb., N.S.	Popes Harb., N.S.	Rudder broken. Mt. P. J. Cooper.	Part. \$300.
April	15..	Inga, 126, 110	34	Barbados.	Schr. Wood Sail	160-68	Bridgetown- St. John, Nfld.	In Gulf Stream.	Sprung a leak. A. Parks.	Part. \$5.
April	10..	Iroquois.	11	Victoria, B.C.	Sloop. Wood Steam	94-38	Sydney, B.C.- Nanaimo, B.C.	Morsby Channel.	Foundered. Mt. A. A. Sears. 18 lives lost.	Total. \$17,000.
Aug.	13..	Invictus, 112, 001	7	Annapolis, N.S.	Schr. Wood Sail	327	Perth Amboy, N.J.- Hamilton, Ber.	Lat. 32-50 N. Lg. 67-05 W. N. At- lantic.	Loss of sails. Mt. J. H. Dill.	Part.
Jan.	29..	John Hays Ham- mond.	3	Gloucester, U.S.A.	Schr. Wood Sail	92	Gloucester, U.S.A.- Fishing Grounds.	Atlantic Ocean.	Rigging parted. Mt. F. Thompson.	Part. \$150.
May	31..	J. W. Mills, 107, 990	11	Lunenburg, N.S.	Schr. Wood Sail	76-25	Mahone Bay, N.S.- Fishing Grounds.	Magdalen Islands.	Collided. Mt. Robert Hiltz.	Total. \$3,000.
June	1..	Jennie May, 103, 491	16	Lunenburg, N.S.	Schr. Wood Sail	88-42	Halifax, N.S.- Fox River.	Gaspe, P.Q.	Stranded. Mt. J. Evans.	Total. \$2,500.
Aug.	17..	J. & L. Irving, 61, 587	36	Yarmouth, N.S.	Schr. Wood Sail	79	Buctouche, N.B.- Port Hastings, NS	Eastern Harb., N.S.	Stranded. Mt. A. Wrye.	Total. \$1,500.
Sept.	9..	Jost, 126, 592	1	Parrsboro, N.S.	Schr. Wood Sail	299	New York- Wolville, N.S.	Bay of Fundy, N.S.	Stranded. Mt. J. R. Pettis.	Part., \$200.
Nov.	22..	John R. Brady.	11	Gloucester, U.S.A.	Schr. Wood Sail	80	Gloucester, U.S.A.- Fishing Grounds.	Off Halifax, N.S.	Rigging carried away. Mt. J. R. Fallock.	Part., \$75.
Oct.	30..	Jost, 126, 592	1	Parrsboro, N.S.	Schr. Wood Sail	299	New York- St. John, N.B.	Black Island Chan- nel.	Collided. Mt. J. R. Pettis.	Part., \$1,500.
July	24..	John Irwin, 107, 002	15	Halifax, N.S.	Steel Steam	413	Halifax, N.S.- Barrington, N.S.	Barrington Passage.	Stranded. Mt. C. A. Travis.	Part.
Dec	23..	Jennie C., 80, 061	13	St. John, N.B.	Schr. Wood Sail	98	Tusket- Boston, Mass.	Machias Bay, U.S.A	Waterlogged and main boom broken Mt. G. C. Dickson	Part., \$300.

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Oct. 31..	James A. Stetson. 103, 804	43	Pictou, N.S.	Schr..... Wood Sail	71-26	Charlottetown, P.E.I.- Alberton, P.E.I.	Alberton, P.E.I.	Stranded. Mt. F. Smith.	Total, \$1,800.
Jan. 29..	Kenneth C..... 116, 910	3	Barbados.....	Schr..... Wood Sail	475	Port Reading, U.S.A. Halifax, N.S.	Lat. 41-44 N. Long. 69-40 W. Atlantic.	Loss of sails.....	.....	Part., \$400.
Mar. 16..	Kileva.....	42	Wyborg, Russia...	Bge..... Iron Sail	1088	Barbados- Wedgeport, N.S.	Lobster Bay, N.S.	Stranded.....	.....	Part.
Jan. 5..	Kings County..... 94, 740	20	Windsor, N.S.	Ship..... Wood Sail	2061	Montevideo- Havana.	Havana Harb.	Stranded.....	.....	Part.
Aug. 20..	Kohinoor..... 74, 015	35	Charlottetown, P.E.I.	Schr..... Wood Sail	77	Pictou, N.S.- Charlottetown, PEI	Gallows Pt. Reef, P.E.I.	Stranded.....	.....	Total.
May 16..	Kings County..... 74, 740	20	Windsor, N.S.	Bge..... Wood Sail	2061	Havana- Montevideo.	South Atlantic.....	Masts cut off.....	.....	Part.
Nov. 18..	Karmoe.....	11	Lunenburg, N.S.	Schr..... Wood Sail	97	New York- Halifax.	Off Seal Island, N.S.	Loss of sails.....	.....	Part., \$550.
Nov. 17..	Kingsway..... 122, 938	5	Vancouver, B.C.	Ketch..... Steel Steam	85	Vancouver, B.C.- Prince Rupert, BC	Dickson Entrance, B.C.	Stranded. Mt. W. H. Gilmour.	.....	No damage.
Dec. 4..	Kingsway..... 122, 938	5	Vancouver, B.C.	Ketch..... Steel Steam	85	Prince Rupert, B.C.- Pacofi, B.C.	Queen Charlotte Island, B.C.	Struck sunken log. Mt. W. H. Gil- mour.	No loss.

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Jan. 27.	Leebro. 122,394	2½ Victoria, B.C.	Sloop. Wood Steam	198 Victoria, B.C.- Banfield, B.C.	West Coast V. Is'd, B.C.	Stranded		
Feb. 2.	Lila D. Young 107,660	11 Lunenburg, N.S.	Schr. Wood Sail	100 Halifax, N.S.- Lunenburg, N.S.	Lunenburg Harb.	Stranded	Part.	
Feb. 9.	Langen	35 Norway	Bge. Iron Sail	1138 Bridgewater, N.S.- Lunenburg, N.S.	Port LaHave, N.S.	Sprung a leak.	Total, \$8,000.	
June 20.	Levecka	18 Parrsboro, N.S.	Schr. Wood Sail	76 Parrsboro, N.S.-	Parrsboro Riv. N.S.	Collided. Mt. F. O'Gilvie.	Part., \$20.	
June 21.	La France 107,666	9 Dawson, Y.T.	Stern. Wheel Wood Steam	169 Lower LeBarge- Dawson.	Thirty Mile River.	Sprung a leak. Mt. S. Martin.	Trifle damage.	
July 26.	Lottie S. 96,966	21 Shelburne, N.S.	Schr. Wood Sail	42 Sydney, N.S.- Isle au Mort, Nfld	Ile au Mort, Nfld.	Struck rock.	Total, \$600.	
Sept. 9.	Lady Napier. 107,765	9 Charlottetown, P.E.I.	Bge. Wood Sail	210 St. Johns Nfld- Brazil.	Atlantic Ocean.	Abandoned at sea.	Total.	
Sept. 6.	Loyal. 101,634	11 Lunenburg, N.S.	Schr. Wood Sail	99 Richibucto, N.B.- Philadelphia.	Vineyard Haven Harbour.	Collided.	Part.	
July 28.	L'Etoile 90,887	23 Port Hawsbury, Ont.	Schr. Wood Sail	47-67 Sydney- Georgetown.	Big Bras d'Or, N.S.	Stranded. Mt. E. J. Walker.	Total.	
Dec. 1.	Latooka. 111,635	10 Lunenburg, N.S.	Schr. Wood Sail	99 Lunenburg, N.S.- Wedgeport.	Fish Island.	Stranded. Mt. M. W. Cook.	Part., \$400.	
	Laura Victoria. 88,455	23 Arichat, N.S.	Schr. Wood Sail	39 Port Hood, N.S.- Georgetown, P.E.I.	Murray Harb., P.E.I.	Foundered. Mt. John Hemphile.	Total.	
Dec. 23.	Laura E. Frank- land. 101,246	19 Halifax, N.S.	Schr. Wood Sail	46 Halifax, N.S.- Campbell's Cove, N.S.	Campbell's Cove, N.S.	Stranded. Mt. Jas. Kenny.	Total, \$600.	
Dec. 23.	Lady Smith. 112,324	9 Bridgetown, Bdos	Schr. Wood Sail	596 St. John, N.B.- Halifax, N.S.	Off Halifax, N.S.	Loss of sails. Mt. R. S. Kerr.	Part., \$500.	

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Dec. 9..	Lonsdale..... 114, 651	25	Sunderland.....	Schr..... Steel Steam	20-43	Solina Cruz-Mexico. Vancouver, B.C.	Vancouver Harb.....	Collided. Mt. W. A. Bate.	Trifle damage.
Nov. 25..	Louisbourg..... 83, 582	30	Montreal.....	Schr..... Iron Steam	1182	St. John, N.B.—Ireland.	Newfoundland.....	Deck load carried away. Mt. L. Holmes.	.....	.....
June 2..	Manchester..... Spinner. 113, 123	8	Manchester, G.B.	F. & A.....	2760	Manchester, G.B.—Montreal, P.Q.	Cape Dog, St. Lawrence River.	Stranded.	.....	.....
May 30..	Margaret G..... 112, 322	9	Parssboro, N.S.	Schr..... Wood Sail	299	Havana-Wilson City, Bahama.	Bahama Islands.....	Struck rocks.....	.....	Part., \$2,843.
June 18..	Metamora.....	9	Duxburg, U.S.A.	Schr..... Wood Sail	81	Boston, Mass.—Fishing Grounds.	25 miles S. of Sambro, N.S.	Loss of sails and rigging. Mt. A. R. Leblanc.	.....	Part., \$1,500.
May 21..	Minnie F. (rosby). 126, 103	2	Halifax, N.S.	Schr..... Wood Sail	119	Barbadoes-Chatham, N.B.	New Brunswick.....	Stranded. Mt. J. Evans.	.....	Part., \$23,000.
July 3..	Morien..... 127, 979	2	Liverpool, G.B.	Schr..... Steel Steam	490	Parssboro, N.S.—Parssboro, N.S.	Minas Channel, N.S.	Stranded. Mt. C. Burchill.	.....	Part., \$800.
May 31..	Mystery..... 201, 418	6	Gloucester.....	Schr..... Wood Sail	78	Gloucester-Grindstone, N.S.	Fox Bay, Anticosti.	Stranded. Mt. C. Rudolph.	.....	No damage.
June 21..	M. D. S..... 107, 306	11	Windsor, N.S.	Schr..... Wood Sail	190	St. John, N.B.—Boston, Mass.	Coast of Maine.....	Strung a leak. Mt. F. G. Gale.	Part.

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Sept. 12.	Morien. 127,979	2	Liverpool, N.S.	Schr. Steel Steam	490	Yarmouth, N.S.- Yarmouth, N.S.	Petit Passage, Bay of Fundy, N.S.	Wheel chain parted.	Part., \$3,000.
Aug. 16.	Mina German. 122,585	2	Yarmouth, N.S.	Schr. Wood Sail	147	Yarmouth, N.S.- New York.	Lat. 43-40. Long. 63-10 Atlantic Ocean.	Loss of deck load.	Part.
Aug. 18.	Minnie. 100,224	19	Halifax, N.S.	Schr. Wood Sail	96	Halifax, N.S.-	Canso, N.S. North Atlantic.	Anchor cable parted	Part.
Oct. 11.	May Flower. 116,553	5	Maitland, N.S.	Schr. Wood Sail	132	Pictou, N.S.- Boston, Mass.	40 miles S. of Cape Sable.	Bulwarks carried away.	Part.
Sept. 6.	Mary F. Smith.		Boston, Mass.	Schr. Wood Sail	32	Boston- Clarke Harbour, N.S.	Green Island, N.S.	Stranded. Mt. A. S. Newell.	Total, \$2,350.
Nov. 17.	Magno. 85 401	9	Magdalen Islds.	Schr. Wood Sail	32	Magdalen Islds- Magdalen Islds.	Straight of Canso, N.S.	Collided. Master, F. Theriault.	Part., \$300.
Nov. 7.	Mary E. Mc- Donald. 75926	33	Lunenburg, N.S.	Schr. Wood Sail	98	Lunenburg, N.S.- Port Hasting	Str. of Canso, N.S.	Collided. Master, W. Greek	Part., \$100.
Dec. 1.	Maria. 61373	41	Miramichi.	Schr. Wood Sail	28	Chatham, N.B.- Souris, P.E.I.	Pannure Island.	Stranded. Master, J. Martin	Total, \$500
Dec. 13.	Mooween.	8	Duxbury, Mass.	Schr. Wood Sail	83	Gloucester, Mass.- Canso, N.S.	Great Island, N.S.	Stranded. Master, D. McDonald	Total, \$12,600
Nov. 21.	Marconi.	9	Liverpool, N.S.	Schr. Wood Sail	198-94	Liverpool, N.S.- New York	Lat. 32.35, Long. 76.40 Atlantic ocean	Loss of spars and sails. Mt., R. A. McLeod	Total, \$10,000
Nov. 22.	Muriel. 103 758	14	Lunenburg, N.S.	Schr. Wood Sail	110-03	Lunenburg, N.S.- Aspy Bay, C.B.	Aspy Bay, C.B.	Stranded. Master, J. C. McDonald	Total, \$3,500
Nov. 19.	M.D.S. 107 306	11	Windsor, N.S.	Schr. Wood Sail	190	Windsor, N.S.- Vineyard Haven, U.S.A.	Gloucester Harbour, U.S.A.	Collided.	Total
Dec. 7.	Marina. 85 552	28	Yarmouth, N.S.	Schr. Wood Sail	16-29	Yarmouth, N.S.	Hemlock Island.	Stranded. Master, C. Butcher	Total
Dec. 20.	Maple Leaf. 111 721	11	Bridgetown, Bar- badoes	Schr. Wood Sail	198-71	Lunenburg, N.S.- Lunenburg, N.S.	Lat. 27.30 N., Long. 65.50 W, N. Atlantic	Loss of sails and leak- ing. Master, Wm. Aranburg	Part., \$3,800

STATEMENT of Weeks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels on Canadian Waters, and to Canadian Sea-going Vessels in other Waters, from January 1 to December 1, 1911—Continued.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
	Nanosee, 122,397	3	Victoria, B.C.	Slp. Steel Steam	166	Vancouver, B.C.—Victoria, B.C.	Haro Straits, B.C.	Ran on reef. Master, T. S. Guns		Trifling damage
July 16.	Nevis, 116,552	8	Maitland, N.S.	Schr. Wood Sail	124	Maitland, N.S.—Greenwich, Conn.	Pollock Rip Shoal, N. Atlantic	Collided, Master, C. N. Hinds		Part., \$1,000
Oct. 22.	Noname, 126,081	3½	Vancouver, B.C.	Scow	76-96	Vancouver, B.C.—Lady Smith	Fraser River, B.C.	Collided		Total
Nov. 15.	North America	31	Charlottetown, P. E. I.	Schr. Wood Sail	99	Hasting—Souris, P. E. I.	Halmill Bay	Stranded, Master, J. Doiron		Part., \$1,450
Oct. 23.	Nancy Lee, 108,333	13	London	Schr. Iron Steam	1,802	Pettingill—St. John, N. B.	St. John, N. B.	Damaged by fire & water. Master, J. Murchie		Part., \$13,026
Dec. 12.	Mina L., 124,925	4	Sydney, N.S.	Schr. Wood Sail	96	Oporto—St. John, Nfld.	Lat. 49 N., Long. 34 W., N. Atlantic	Foundered. Master, W. R. Kennedy		Total
June 2.	Operator, 126,501	2	Victoria, B.C.	Schr. Wood Steam	379	Vancouver, B.C.—Hazelton, B.C.	Skeena River, B.C.	Tree fell across stern of vessel		Part., \$1,250
Aug. 29.	O. P. Silver, 94,779	22	Lunenburg, N.S.	Schr. Wood	70	Pictou, N.S.—Canso, N.S.	Chidabucto Bay, N.S.	Stranded		Total
Dec. 4.	Otis Miller, 103,268	5	Dorchester, N.B.	Schr. Wood Sail	96	Port Greville, N.S.—Boston, Mass.	Cape Ann	Sails torn. Master, G. G. Morrison		
Nov. 1.	Oreca, 85,562	28	Halifax, N.S.	Schr. Wood Sail	13-50	Georgetown, P. E. I.—Port Malcolm, N. S.	Big Island, N.S.	Loss of sails and vessel driven ashore.		Total, \$1,050

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Mar. 27..	Percy C. 126, 037	2	Liverpool, N.S.	Schr. Wood Sail	99	Liverpool, N.S.— Boston, Mass.	N.S.	J. W. Rafuse	Total, \$1,000
	Pastime. 121, 759	8	Vancouver, B.C.	Ketch. Wood Gaso.	10	.....	Schealt Dock.	.....	.....	.....
May 2..	Palmette. 111, 725	10	Barrington	Schr. Wood	97-77	Guttenberg, N.J.— New York	East River, N.Y.	Collided, Master, C. Anderson	.....	Total, \$2,000
Apr. 9..	Princess of Avon. 117, 165	4	Windsor, N.S.	Schr. Wood Sail	88	Barton, N.S.— Boston, Mass.	.....	Sprung a leak	.....	.....
Oct. 14..	Princess Beatrice. 116, 405	8	Victoria, B.C.	F & A. Wood Steam	635	Victoria, B.C.— Vancouver, B.C.	Goletas channel.	Stranded, Master, G. D. Robertson	.....	Part.
Nov. 22..	Pallanza	20	Hamburg	Sshr. Steel Steam	2, 960	Philadelphia— Hamburg	Lat. 42. 91 N., Long. 60. 40 W., Atlantic Ocean	Submerged and pro- pellor damaged. Master, I. Fendt	.....	Part., \$5,000
Oct. 4..	Pansy 72, 316	24	Parrsboro, N.S.	Schr. Wood Sail	76	Parrsboro, N.S.— Boston, Mass.	Two miles of Isle of Hants, N.S.	Leaking, Master, C. A. Morrison	.....	.....
Nov. 27..	Percy C. 126, 037	2	Liverpool, N.S.	Schr. Wood Sail	98-77	Ship Harbour, N.S.— Elizabeth Port, N. Y.	West of Cape Sable.	Leaking, Master, J. N. Rafuse	.....	Part., \$198
Dec. 15..	Percy C. 126, 037	2	Liverpool, N.S.	Schr. Wood Sail	98-77	Ship Harbour, N.S.— Elizabeth Port, N. Y.	Portland Harbour	Collided. Master, J. N. Rafuse	.....	Part.
Dec. 10..	Palmette. 111, 725	10	Barrington, N.S.	Schr. Wood Sail	98	Port Clyde, N.S.	Portland Harbour	Collided. Master, C. Anderson	.....	Part., \$400
Feb. 1..	Princess Adelaide 126, 948	1	Victoria, B.C.	Schr. Steel Steam	191025	Victoria, B.C.— Seattle, Wash.	.....	Stranded, Master, R. A. Hunter	.....	No damage
Dec. 12..	Queen City 103, 482	18	Victoria, B.C.	Wood Steam	243-70	Victoria, B.C.— Holberg	Alberni Canal	Stranded, Master, E. Gillam	.....	Part.
Jan. 29..	Rappahamook 102, 106	17	Liverpool, G.B.	Schr. Steel Steam	2, 490	London, G.B.— Halifax, N.S.	Lat. 44. 39 N., Long. 61. 38 W., Atlantic Ocean	Tail shaft broken	.....	Part., \$7,500

STATEMENT of Wrecks and Casualties reported as having occurred to British, Canadian and Foreign Sea-going Vessels in Canadian Waters, and to Canadian Sea-going Vessels on others Waters, from January 1 to December 1, 1911.—*Continued.*

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
May 7.	Rhodora.....	1½	Gloucester, U.S.A.	Schr. Wood Sail	81	Gloucester, U.S.A.—Canso, N.S.	Grass Island Reef.	Ashore.....	.....	Part., \$2,000
May 4.	Romeo..... 100,973	20	St. John, N.B.	Schr. Wood Sail	111	St. John, N.B.—New York	Pollock Rip Shoal, N. Atlantic	Leaking.....	.....	Part.
July 10.	Reverie.....	2	Vancouver, B.C.	Schr. Wood Sail	15.46	.....	N. Vancouver, B.C.	Burnt.....	.....	Total
Sept. 19.	Record.....	.....	Norway.....	Bge. Steel Sail	1,312	Bahia Blanca—Matane	Main-a-Dieu.....	Stranded. Master, W. Grandsen	.....	Part.
Nov. 13.	Reliance..... 123,899	5	Shelburne, N.S.	Schr. Wood Sail	19	Philadelphia—Yarmouth, N.S.	Cape Foulrehu—C.B.	Stranded.....	.....	Total
Nov. 23.	Rival..... 59,462	41	Halifax, N.S.	Schr. Wood Sail	20	Jeddore, N.S.—Halifax, N.S.	Halifax Harbour....	Collided, Master, H. Faulkner	.....	Part., \$100
Dec. 27.	Renwick..... 97,954	21	Newcastle, G.B.	Schr. Steel Steam	402	Port Hasting, N.S.—Bridgetown	Off Green Isl., N.S.	Collided. Master, J. F. Chapman, 3 lives lost.	.....	Total, \$47,700
Feb. 7.	St. Croix..... 94,739	21	Windsor, N.S.	Bgte. Wood Sail	653	Buenos Ayres, S. America—Philadelphia	Delaware River, U.S.A.	Collided. Master, K. Sohn	.....	Part., \$50
Dec. 12. May 24.	Queen City..... Sechelt..... 122,338	18 18	Victoria, B.C. Vancouver, B.C. Wood Steam	243.70 71	Victoria, B.C.—Sooke, B.C.	Alberni Canal—Beecher Bay, B.C.	Stranded, Master, Foundered.....	Part. Total, \$10,000

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May	30.	Saturna.....	26	Vancouver, B.C.....	Tug..... Wood Steam	15	Vancouver, B.C.....	False Creek, B.C.....	Rolled over by boom of logs. Master, F. I. Roberts	Total
July	28.	Sunlight..... 124, 033	4	Liverpool, N.S.....	Bge..... Steel Sail	1, 298	San Domingo- Boston, Mass.	10 miles W. of Nan- tucket Lighthouse, N. Atlantic	Loss of sails. Mast., M. Crowley	Part.
July	4.	St. Maurice..... 103, 723	15	Parrsboro, N.S.....	Schr..... Wood Sail	272	Jaemel, Hayti- Wilson City, Ba- hamas	Jaemel, Hayti Harb.	Rudder broken.....	Part., \$1,400
Sept.	4.	Secret..... 100, 471	19	Lunenburg, N.S.....	Schr..... Wood Sail	75-86	Port Hasting, N.S.- Amherst	Entrance Amherst, Magdalen Islands	Stranded. Master, F. Cormier	Total, \$1, 620
Aug.	29.	Stanley..... 125, 967	4	Parrsboro, N.S.....	Schr..... Wood Sail	19	Apple River, N.S.- Apple River, N.S.	St. John Harb. N.B.	Explosion of gasoline	Part., \$500
Sept.	30.	Strathlome..... 126, 138	2	Halifax, N.S.....	Wood Steam	81	Halifax, N.S.- Souris, P.E.I.	Cheticamp, Cape Breton	Stranded. Master, W. Diekson	Part., \$700
Sept.	29.	Speculator.....	8	Lunenburg, N.S.....	Schr..... Wood Sail	99	Lahave, N.S.- Halifax, N.S.	Chebucto Hd., Hali- fax Harbour	Collided, Master, J. Jetson	Part., \$990
Nov.	8.	St. Bernard..... 107, 57	10	Parrsboro, N.S.....	Schr..... Wood Sail	123	Port au Pic, N.S.- Vineyard Haven, U.S.A.	Port au Pic, N.S.....	Badly strained.....	Part., \$300
Nov.	23.	Spray..... 106, 076	17	Vancouver, B.C.....	Wood Steam	500	..... -Vancouver, B.C.	Near Wark Island	Foundered.....	Total
Nov.	2.	St. Anthony..... 100, 562	12	Parrsboro, N.S.....	Schr..... Wood Sail	100	New York-Parrs- boro, N.S.	Yarmouth, Harb., N.S.	Loss of Anchor..... Mt. W. L. Yates.	Part, \$200.
Nov.	15.	St. Patrick..... 103, 464	12	Halifax, N.S.....	Schr..... Wood Sail	27	Jeddore, N.S.- Murray Harb.	Little River..... P.E.I.	Stranded. Mt. A. Jennee.	Total \$600.
Nov.	12.	Savoy..... 104, 887	17	London G.B.....	2 mts. Steel Steam	184-16	Ellis Bay.....	Quebec Harbour....	Collided. Mt. L. Pelletier.	Part \$1, 332.
May	6.	Stormount..... 122, 409	5	Montreal.....	F. & A..... Steel Steam	123-83	Montreal-Sydney, C.B.	Longue Pointe, P.Q.	Grounded. Mt. A. N. McMaster.	No damage.

STATEMENT of wrecks and casualties reported as having occurred to British, Canadian and foreign sea-going vessels in Canadian waters, and to Canadian sea-going vessels in other waters, for the twelve month ending December 31, 1912—*Concluded*.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sailing.	Register Tonnage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
Feb. 20.	Tussler. 126, 239	2	Victoria, B.C.	Wood Steam	11	Victoria, B.C.	Victoria Harb., B.C.	Partially burnt.		Part, \$20.
Jan. 26.	Tees. 95, 929	18	Victoria, B.C.	Steel Steam	441	Holberg, B.C.—Victoria, B.C.	Gowland Island, B.C.	Stranded.		Part, \$7,000.
April 6.	Transvaal. 111, 733	9	Lunenburg, N.S.	Schr. Wood Sailing	79	Burin, Nfld.—Rose Blanche, Nfld.	Turnip Island, Nfld.	Stranded.		Total, \$300.
May ..	Tacoma. 145, 835	10	Gloucester.	Schr. Wood Sailing	71	Gloucester—Fishing Grounds.	Canso, N.S.	Stranded. Mt. J.V. Bonia.		Part, \$800.
July 29.	Tay. 92, 369	24	St. John, N.B.	Schr. Wood Sailing	125	St. John, N.B.—Boston, Mass.	Great Head Mount Desert, Me.	Stranded. Mt. J. W. Scott.		Total, \$6,130.
Nov. 26.	Tees. 95, 927	18	Victoria, B.C.	Steel Steam	441	Holberg—Victoria, B.C.	Monteith Bay, B.C.	Stranded. Mt. E. Gillam.		
Dec. 15.	Transfer.	17	Victoria, B.C.	Wood Steam	99.74	Westminster—Westham.	Fraser River, B.C.	Collided. Mt. W. H. Robinson.		Total, \$2,000.
Nov.	Troubadour. 107, 511		Vancouver, B.C.	Wood Steam		Port Alberni—Port Alberni.	Hello Gate.	Foundered.		
April ..	Unity.	7	Parrsboro, N.S.	Schr. Wood Sailing	148	Halifax, N.S.—New York.	Yarmouth Harb., N.S.	Sprung a leak.		Part.

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Month	Date	Vessel	Port	Latitude	Longitude	Cause	Result	Total, \$9,000.
March 15..	Umbrine.....	23	Shelburne, N.S.	Schr. Wood Sail	99	Victoria, B.C.-Friendly Cove.	Lat. 43.50 N. 125.00 W. Lg. Foundered.....	Total, \$9,000.
Sept. 17..	Venture.....	1	Glasgow.....	Steel Steam	579-77	Victoria, B.C.-B.C. Ports.	Johnston Strait, B. C. Stranded. Mt. W. S. Morehouse. Part.	Part.
April 7..	Wanda.....	21	Yarmouth, N.S.	Schr. Wood Steam	32	Yarmouth, N.S.-Seal Island.	Pease's Isl., N.S. Stranded.....	Part.
Feb.	Waterwitch.....	4	Liverpool, N.S.	Schr. Wood Sail	190	St. John, Nfld.-Bahia.	Lat. 44.10 N. 53.49 W. Lg. Stranded and leaking. Part.	Part.
Sept. 23	W. E. Gladstone..	13	Digby, N.S.	Schr. Wood Sail	19	West Port-Digby, N.S.	Digby, N.S. Filled with water.....	Part, \$150
Nov. 15..	Wanita.....	14	Windsor, N.S.	Schr. Wood Sail	42	Economy, N.S.-St. John, N.B.	Spencer Islands, N. S. Stranded. Mt. F. E. McCumber. Part, \$600.	Part, \$600.
April 29..	Walkyrie.....	87.75	St. Malo, France.	Schr. Wood Sail	87.75	St. Malo-Fishing Grounds.	Straight of Canso, N. S. Stranded. Master Joe Gull. Total.	Total.

INLAND WRECKS.

Month	Date	Vessel	Port	Latitude	Longitude	Cause	Result	Total, \$9,000.
May 3..	Aletha.....	10	Kingston, Ont.	Wood Steam.	90	Pictou-Belleville.....	Navy Bay, Ont. Stranded.....	Part.
Oct. 22..	Avon.....	45	Hamilton, Ont.	Schr. Wood Sail	195	Sarnia, Ont.-Sarnia, Ont.	Near Point au Bas-ques. Foundered.....	Total, \$5,700.
Aug. 1..	Airmyn.....	8	Goole.....	Schr. Steel Steam	515	Oswego-Erie, Pa.	Entrance Bersimis River, P.Q. Stranded.....	No damage.
Nov. 22..	Ahteek.....	...	Sault Ste. Marie, Ont.	Tug. Wood Steam	21	John Island, Sault Ste. Marie, Ont.	St. John Channel. Burnt.....	Total \$3,500.
May 29..	Bobs.....	11	Toronto, Ont.	Wood Steam.	5.95	Centre Island-R.C. Y. City Harbour.	300 ft. from R.C. Y. C. Landing. Collided.....	Part.
March 26..	Catacraft.....	29	Hamilton, Ont.	Wood Steam	598	Hamilton-Brockville.	Brookville Harbour. Burnt.	Part.

STATEMENT of wrecks and casualties reported as having occurred to British, Canadian and foreign vessels in Canadian waters, and Canadian vessels in other waters, for the 12 months ending December 31, 1911.

Date of Casualty.	Name of Ship Off. No.	Age.	Registered Port.	How rigged Iron or Wood Steam or Sail.	Reg- ister Ton- nage.	Port sailed from Port bound to	Place where Casualty happened.	Nature of Casualty and Master of Vessel.	Lives Lost.	Remarks.
Aug. 21.	C. C. Martin. 116, 670	5	Midland, Ont.	Tug. Wood Steam	45	Penetanguishene- French River.	Key Harbour.	Foundered.	.....	Total.
July 12.	Caspian. 112, 142	65	Kingston, Ont.	Iron Steam	54 3/4	Kingston, Ont.- Charlotte, N. Y.	Off Point Ann, Bay of Quinte.	Stranded.	.....	Part.
Aug. 26.	City of Genoa. 126, 897	19	Fairport, U.S.A.	Wood Steam	1,817	Chicago Island- Buffalo, N. Y.	About 150 ft. of Sar- nia, Dock St. Clair River.	Collided.	.....	.....
Oct. 4.	Coruna. 99, 224	20	Leith.	Schr. Steel Steam	791. 64	Montreal-Fort Wil- liam.	Lake Superior.	Stranded.	.....	Part.
Aug. 20.	Chieftain III. 117, 129	6	Kingston, Ont.	Wood Steam	147	Kingston, Ont.- Kingston, Ont.	St. Lawrence River.	Collided.	.....	Total, \$20,000.
May 12.	Donnacana. 110, 363	11	New Castle, C.B.	Steel Steam	1,222	Fort William- Montreal.	Near Port Colborne.	Struck obstruction.	.....	Part.
Oct. 17.	Emperor. 126, 654	1	Midland, Ont.	Steel Steam	4,641	.....	Sault Ste. Marie, Ont.	Foundered.	.....	Part.
Nov. 25.	Edward Kelly. 8, 997	.....	Eric, Penn.	Ege. Wood Towing	.....	Port Colborne, Ont. Erie, Pa.	W. end of E. Break- water on outside.	Tow line parted.	.....	Total, \$6,000
Feb. 22.	F. H. Burton. 90, 818	47	Kingston, Ont.	Schr. Wood Sail	136	.....	Kingston Harbour.	Burnt.	.....	Part, \$900.
May 2.	Glenmount. 122, 408	4	Montreal.	Steel Steam. Schr.	1,246	Fort William-Mont- real.	St. Lawrence River.	Stranded.	.....	Part.
Aug. 29.	Genilda.	13	Steel Schr. Steam	158	Cleveland-Port Arthur.	Copper Island, Lake Superior.	Foundered.	Total, \$130,000.

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Oct.	8.	Gordon Gauthier. 88,625	24	Windor, Ont.	Tug.	18	Port Arthur—Port Arthur.	19	St. Mary's Island, Nun- der Bay.	Part, \$5,000.
Dec.	2.	Governor Morton. 94,719		Port Stanley, Ont.	Steam.	10, 12	Port Stanley, Ont.— Port Burwell.		Burnt.	Total.
Nov.	7.	Gaspesian. 70,228	37	Quebec.	Steam.	287	Paspebiac-Montreal.		Stranded.	
Sept.	22.	Henry Phipps. 204,136	4	Duluth, Minn.	Iron.	5,450	Two Harbours, Minn— Cleveland, Ohio.		Collided.	Part, \$6,000.
Sept.	22.	Joliet. 76,873	20	Duluth, Minn.	Steel.	1,596	Two Harbours, Minn—Cleveland		Collided.	Part, \$75,000.
July	2.	Keystorm. 129,749	1	New Castle.	Steel.	1,037	Ashtabula-Montreal.		Grounded.	Part.
April	25.	Kate.		Sault Ste. Marie, Ont.	Steam.	30	Sault Ste. Marie— Soo, Ont.		Burnt.	Total, \$2,500.
Dec.	8.	Lady of the Lake.		Collingwood.	Oak.	47	Thornbury-Parry Sound, Ont.		Foundered.	Total, \$2,000.
Nov.	30.	Lady of the Lake. 111,854	10	Owen Sound, Ont.	Steel.	2,504	Thornbury, Ont.— Parry Sound, Ont.		Collided.	Total, \$5,000.
Jan.	5.	Mary Ann Lydon. 76,162	34	Kingston, Ont.	Wood.	180			Burnt.	Part.
May	17.	M. T. Green.		Chicago, Ill.	Sail.		Chicago, Ill.—Owen Sound, Ont.		Stranded.	Part.
Aug.	31.	Mystery. 116,849	4	Owen Sound, Ont.	Wood.	3,576	Warton-White Cloud Island.		Burnt.	Total, \$4,000.
Feb.	9.	Nellie Lyon. 126,229	21	Sarnia.	Steam.	198	Algoma, Mich.		Burnt.	Total, \$15,000.
Oct.	22.	Naiad. 116,892	24	Sarnia.	Wood.	276	Thessalon-Sarnia.		Foundered.	Total, \$6,000.
Sept.	15.	Natashquan. 62,598		Quebec.	Schr.	642-22	Quebec-Quebec.		Shaft broken.	Part, \$500.
Dec.	15.	New Delta. 126,894	14	Vancouver, B.C.	Iron.	49	Ladner-Ladner.		Collided.	Part, \$200.
Sept.	23.	Port Simpson. 122,390	34	Victoria, B.C.	Wood.	379-23	Newton, Hazelton.		Stranded.	Part, \$500.

STATEMENT OF wrecks and casualties reported as having occurred to British, Canadian and foreign vessels in Canadian waters, and Canadian vessels in other waters, for the 12 months ending December 31, 1911—*Concluded*

Dec. 1.....	Port Colborne.....	New Castle, O.....	Steel. Steam.	1,305 Montreal-Port thur.....	Lake St. Louis.....	Grounded.....	No damage.
Nov. 20.....	Raleigh.....	40 Detroit, U.S.A....	Str. Wood.	1,104 Point Levis, Que....	5 miles E. of Port Colborne.....	Rudder gave way.... 3 lives lost.	Total loss.
Oct. 13.....	Secret..... 100,404	18 Hamilton, Ont.....	Yacht. Wood.	629 Parry Sound-Red Rock Light house.	Off Star Shoal Black Rock.....	Burnt.....	Total, \$3,000.
	Trade Wind..... 88,657	Whitby, Ont.....	Steam. Schr.	181	Lower Kingston Harbour.....	Burnt.....	
Nov. 17.....	Turret Cape..... 104,283	New Castle on Tyne.....	Wood. Sail.	1,827 Point Edward-Port Arthur.....	Lake Huron.....	Stranded.....	
Aug. 26.....	W. H. Gilbert..... 81,382	Duluth, Minn.....	Iron. Steam.	2,200 Two Harbours, Mams.- Con- neat, Ohio.....	Sarnia, Ont.....	Collided.....	Part, \$5,000.
Aug. 21.....	Winslow..... 96,855	11 Sarnia, Ont.....	Tug. Wood.	1,920-0 Little Current.....	Meldrum Bay.....	Foundered.....	Total, \$25,000.
Sept. 27.....	Winnitoba..... 122,274	2 Winnipeg, Man.....	Wood. Steam.	556 Winnipeg-St. Peter..	Red River.....	Foundered.....	Part, \$17,000.
Oct. 28.....	Zephir.....	18 Hamilton, Ont.....	Str. Iron. Steam.	3 Lake Nipissing	Lake Nipissing	Struck rock.....	Part, \$300.

APPENDIX No. 14.

LIFE SAVING REPORT FOR 1912.

SIR,—I have the honour to submit the following report on the Life Saving Service for the season 1911-12.

NOVA SCOTIA.

Duncan's Cove.—Inspected September 22. Drilled crew in boat and with Lyle Gun, everything satisfactory.

On November 27, 1911, life boat went to the assistance of a disabled fishing boat. March 13, 1912, the schooner *Isleworth* was reported ashore at Chebucto Head, and the boat immediately put out to her assistance. A heavy sea was running with thick fog. On reaching the wreck it was found that the crew were preparing to land in their own boat. Lifeboat stood by until all were safely landed.

St. Paul's Island.—Crew constantly at practice.

Westport.—Boat went to assistance of German schooner *Mina* on February 8. The boat is unsatisfactory and notice has been given that the agreement will terminate on April 15, 1912.

Whitehead.—Inspected station on December 21st. Hugh Munro, the coxwain, is rather advanced in years, but still strong and active and capable of filling the position.

Seal island.—In July the slipway was damaged and repaired at a cost of \$85.

Scatarie island.—On September 19, at 3 p.m., a vessel was seen to be ashore at Main-a-Dieu, which proved to be the Norwegian barque *Tredesstrand*. The lifeboat was immediately launched and went to the scene of the wreck, arriving there about 7 p.m., but the fog was so thick that the wreck was not seen until 3 a.m. on the 20th. The lifeboat went alongside and took in five of the crew when a sea struck and capsized her. All hands managed to get hold of the boat and after drifting almost a mile were picked up by the tug *D. H. Thomas*. Then having righted their boat they went back to the wreck and rescued the remainder of the crew.

The boat was of the Beebe-McLellan self-bailing type, but I am of the opinion that they are not much good, as they are extremely difficult to right again when they once capsize. A new boat built after a design by the late S. C. Campbell was immediately sent off to Scatarie to replace the other one and it seems to be giving satisfaction.

Devil's Island.—Inspected station on September 22. Everything satisfactory.

Herring Cove.—Inspected station on September 22. Satisfactory. On March 13, the boat was called out to go to the schooner *Isleworth* ashore at Chebucto Head, but after pulling for some hours against a head sea, was forced to return.

Port Mouton.—Usual drills, &c., carried on during season.

Cheticamp, N.S.—I visited this place on September, 1911, with a view of seeing if I considered it necessary to establish a station. On my return I recommended that a station be established, equipped with a power lifeboat and a lookout house on a point about two miles from the town. This was approved and steps taken to establish a station early the following year as soon as the weather conditions would permit of building.

3 GEORGE V., A. 1913

Richibucto, N.B.—A dwelling house was built at this station and the crew engaged permanently for the season of navigation, the crew consisting of a coxswain and eight men.

Canso, N.S.—Went to the assistance of the schooner *Rodora* on June 23, and took on crew.

Again on Aug. 16, 1911, they went to the assistance of the barque *Matilda* which was stranded.

I inspected this station and found everything in very good order.

Clark's Harbour.—Thos. Nickerson, coxwain, retired from the service, and Wm. D. Attwood appointed in his place.

Baker's Cove.—Various repairs were carried out at this station and on November 15 the schooner *Reliance* went ashore in a gale of wind. The crew and their effects were landed by the life-boat.

Little Wood Island.—This is a permanent station equipped with a twin-screw Beebe-McLellan self-bailing boat, and during the year has rendered assistance to numerous fishing boats in distress. An auxiliary sloop was hired for the winter months, and it is intended to place a schooner of about 70 tons at the station.

On February 27, a new captain and crew were appointed. I inspected the station two or three times during the year and each time found everything in good order.

Pictou Island.—\$230 was expended building new launchways.

Blanche.—During the evening of June 16, 1911, the steamer *Ben Urn* ran ashore on Half Moon rocks in a dense fog. The crew was saved by the life-boat in conjunction with the ship's boats.

On July 3, during a thick fog, signals of distress were heard. The life-boat's crew went out and found the SS. *Bridgewater* lost her bearings, and were piloted into safety by the life-boat.

Telephone communication is in the course of erection at this station.

Consecon, Ont.—John McLean, coxwain, resigned, and Everett P. Cox appointed in his place.

Priest Pond, P.E.I.—The rocket brigade increased from 7 to 12 men to make a complete crew. In August, 1911, silver watches were awarded to J. McDonald and Jos. McEachern, two of the rocket brigade, for heroic conduct in rescuing a fisherman in a very heavy sea. These watches were presented to the men in October by Mr. Lord, inspector of life saving stations in Prince Edward Island.

On November 15 the brigade received a call from Souris 12 miles distant where a schooner was ashore and breaking up. The distance of 12 miles the brigade covered in about 3 hours which was good work owing to the roads being very heavy. On arrival they found the crew of the schooner had been rescued by the lifeboat and their assistance was not required.

Charlottetown, P.E.I.—In May the boat went out to the assistance of a schooner on a shoal. The schooner was got off.

On October 19 a schooner was reported in distress and the crew went to assist but their services were not required.

Cascumpeque, P.E.I.—A new coxswain was appointed at this station in place of John Champion who took charge of the Alberton rocket apparatus.

Souris, P.E.I.—On November 15, 1911, the schooner *North America* went ashore in a heavy gale, and the crew was rescued by the lifeboat.

Collingwood, Ont.—The usual drills were performed. Nothing of importance occurred at this station.

Long Point, Ont.—Station commissioned on April 1 and a telephone line was constructed from the station into the Big Creek Shooting Co's buildings, the work being done by the crew.

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On November 21 two steam barges went ashore on Long Point, and the crew of the lifeboat went to their assistance and eventually both were floated off without much damage.

Port Stanley, Ont.—The usual drills were performed.

Goderich, Ont.—The usual drills were performed.

Point Pelee, Ont.—Station commissioned with a permanent crew for the season of navigation on April 1. Station inspected twice by Captain Robinson of *Vigilant*.

Toronto, Ont.—The usual drills were carried out. Mr. William Ward, the coxswain, died after nearly thirty years in the life-saving service. Frank Ward, his son, was appointed in his place. The question of establishing a permanent and more effective station was discussed.

Southampton, Ont.—Usual drills carried out. Improvement of station contemplated.

Kincardine, Ont.—Usual drills.

Cobourg, Ont.—Usual drills were carried out.

Port Hope, Ont.—The usual drills were carried out.

Escuminac, N.B.—Slip way was built at a cost of \$15. Usual drills carried out.

Banfield Creek, B.C.—This station is in commission all the year round; until March with a full crew, when it is reduced for the summer season.

A new Standard motor engine has been placed in the boat and the boat given a thorough overhaul.

Clayoquot, B.C.—Station in commission from November to March. In October slipway was repaired at a cost of \$100. The station was inspected by Mr. Gordon Halkett, who reported well on the crew.

Uchuelet, B.C.—This station was commissioned in November with a new crew and Wm. L. Thompson as coxswain.

On October 13, a gasoline launch was reported in distress. A volunteer crew assembled and went to her assistance, saving the crew and boat.

In February, 1912, while taking stores to some starving settlers the lifeboat capsize with the result that one of the crew, Toralf Wingen, lost his life in spite of heroic attempts of the coxswain to save him. The coxswain, Mr. Thompson, was awarded a gold watch in recognition of his bravery in endeavouring to save Mr. Wingen.

HENRY THOMPSON,

Commander, R.N.,

General Superintendent Life Saving Service.

EXPENDITURE REWARDS SAVING LIFE, 1911-12.

General account.	\$ 6,518 02
<i>Nova Scotia—</i>	
Bay View.	\$6,900 00
Baker's Cove.	931 80
Blanche.	400 00
Brier Island	365 00
Canso.	404 00
Clark's Harbour.	433 05
Devil's Island.	391 84
Duncan's Cove.	620 17
Herring Cove.	330 62
Pictou.	501 00

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August 9, 1911.—Two Ladies' gold watches for Mrs. Eva Homans and Miss Gertrude Roy for saving the lives of Percy and Alton Roy.

September 16, 1911.—One silver watch for Edward Kinney for saving lives on two different occasions.

November 8, 1911.—Two silver watches for Gabriel Billiard and Simeon Ayer for their bravery in rescuing Thos. Burke.

January 8, 1912.—One silver cup for Captain R. G. Richards, of the ss. *Glenmay* for services rendered to the schooner *Renoun*.

January 10, 1912.—Two gold watches for Capt. P. H. Uberroth and Gunner Karl Johannsen of the U.S.R.C. *Gresham*, for services to Canadian schooner *S. A. Fownes*.

May 31, 1912.—Two silver watches for Wm. P. Devoe and Jas. Stubbart for rescuing Wm. and Angus Stubbart.

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LIFE-SAVING Stations maintained

Number.	Stations.	Established.	Coxswain.	Crew.	Coxswain's salary. — Per annum.	Pay of Crew.
<i>New Brunswick—</i>						
1	Little Wood Island.....	1910	Harry Harvey..	8	\$ 60	\$35 per month, 50c. a day board.
2	Richibucto.....	1907	Albert Long....	8	60	" "
3	Point Escuminac.....	1908	E. F. Flieger....	7	75	\$2.00 per drill.
<i>Nova Scotia—</i>						
4	Baker's Cove.....	1886	A. Cain.....	7	75	" "
5	Blanche.....	1889	W. A. B. Smith	7	75	" "
6	Clark's Harbour.....	1900	W. D. Attwood.	7	75	" "
7	Canso.....		J. J. Berrigan...	7	75	" "
8	Devil's Island.....	1885	B. H. Henneberry.	7	75	" "
9	Duncan's Cove.....	1886	J. W. Holland...	7	75	" "
10	Herring Cove.....	1885	J. Gorman.....	7	75	" "
11	Pictou Island.....	1889	Duncan McCallum.	7	75	" "
12	Port Mouton.....	1889	Walter Cook....	7	75	" "
13	Seatarie.....	1885	T. Nearing.....	7	75	" "
14	S��al Island.....	1880	Thos. Symonds	7	250	\$100 per annum.....
15	St. Paul's Island.....	1885	Supt. Humane Establishment	3	.....	\$300 each per annum.....
16	White Head.....	1890	H. P. Monroe...	7	75	\$2 per drill and extra when saving life.
17	Sable Island.....	1885	(G. Soderberg... J. Ritcey.....)	..... .....	250 250	Paid as island staff.
	Cheticamp, N.S.....	1911	M. Maillett....	7	.....	Com. \$60, eng. \$50, crew \$35 during season of navigation.
	Bay View (Digby Co.).....	1911	T. Hayden.....	7	.....	Com. \$60 per mon. eng. \$50, crew 35 and \$15 a month board.
<i>Prince Edward Island—</i>						
18	Priest Pond.....	1909	J. J. Ryan.....	12	75	\$2 per drill and extra when saving life.
19	Charlottetown.....	1907	E. White.....	7	75	" "
20	Souris.....	1907	N. McIntosh....	7	75	" "
21	Alberton.....	1907	John Champion.	12	75	" "
<i>British Columbia—</i>						
22	Banfield	{ 1909 1907	Geo. Murray....	11	40	Eng. \$75, crew \$65 per month, 70c. for board.
23	Uclulet.....	1908	W. L. Thompson	9	85	\$65 per month for men during season and 65c. board.
24	Tassiat.....	1907	W. Kennedy....	1	60	Patrol.....

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by the Dominion Government.

Description of Boat.	Cost.	Where Built.	Equipment.	Remarks.
	\$			
Beebe-McLellan twin screw, motor boat.	2,500	Sorel, P.Q.....	Full regulation..	Station built 1911 and telephone communications established between Grand Rock, Little Wood Island and Seal Cove.
Race point surf-boat, 24 feet long.	225	"	"	New Dwelling house in commission during season of navigation.
Beebe-McLellan self-bailing.....	225	"	"	Boathouse to be built.
Dobbin's pattern self-righting, 25 feet long.	575	Dartmouth, N.S.	"	.. Iron rails laid in 1900.
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	" ..	"	.. New boat, 1901.
Beebe-McLellan self-bailing, 25 feet long, low ends.	250	" ..	"	.. Boathouse completed June 7, 1909.
Dobbin's pattern, surf-boat, self-bailing, 25 feet long.	575	" ..	"	.. Lyle gun at this station.
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S.	"	.. Lyle gun at this station and new boat in 1903.
" " " "	250	" ..	"	"
Dobbin's pattern, self-righting and bailing, 25 feet long.	575	Dartmouth, N.S.	"	"
" " " "	575	" ..	"	"
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	250	Shelburne, N.S.	"	.. New boat in 1903.
Beebe-McLellan boat on east side	240	" ..	"	"
Beebe-McLellan boat on west side.	240	Halifax, N.S....	"	"
Beebe-McLellan self-bailing, 25 feet long, low ends.	250	Shelburne, N.S.	"	.. Lyle gun here since 1903.
Dobbin's pattern, surf-boat, self-bailing, 25 feet long.	575	Dartmouth, N.S.	"	"
Two Dobbin's pattern, self-righting and bailing, and one Beebe-McLellan surf-bailing.	1,100	Halifax, N.S....	"	.. Lyle gun and rocket apparatus at this station. Coxswain under control of Supt. of Humane Establishment.
Beebe-McLellan twin screw, motor boat.	2,500	Sorel, Q.....	"	.. New station with lookout tower and telephone communication in course of construction.
36 feet, self-bailing, self-righting power boat.	9,500	Bayonne, N.J..	"	.. Station in the course of construction.
Board of Trade apparatus.....		England.....	"	"
Beebe-McLellan self-bailing.....	225	Shelburne, N.S.	"	"
" " " "	225	" ..	"	"
" " " "	225	" ..	"	.. Rocket apparatus has been placed and house for the same.
Doherty's Improved Beebe-McLellan, 25 feet long.	575	Vancouver Shipyard Co., Vancouver, B.C.	"	.. Placed at Pachena Bay.
Self-righting self-bailing power, lifeboat, 36 feet long.	1,184 52	Bayonne City, U.S.A.	"	.. New motor boat and Lyle gun in combination with Pachena Bay.

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LIFE-SAVING Stations maintained by

Number.	Stations.	Established	Coxswain.	Crew.	Coxswain's salary. — Per annum.	Pay of Crew.
					\$	
25	Clayoquot.....	1908	A. Arnet.....	8	85	\$65 per month when employed, 70c. per day board.
26	.....				
27	<i>Ontario—Great Lakes—</i> Cobourg.....	1882	D. Rooney.....	6	75	\$2 per drill and extra when saving life. “ “
28	Collingwood.....	1885	G. F. Watts....	7	75	“ “
29	Goderich.....	1886	D. MacKay.....	7	75	\$2 per drill and extra when saving life. “ “
30	Kincardine.....	1903	Thos. McGaw..	7	75	“ “
31	Long Point.....	1902	Jas. Smith.....	9	75	1st April to Dec., cox. \$60 per month, crew \$45 per month, \$15 board.
32	Point Pelee.....	1900	L. Wilkinson....	7	75	1st April to 15 Dec., cox. \$60 per month, crew \$50 per month, \$15 board.
33	Port Hope.....	1889	W. T. Clark....	7	75	“ “
34	Port Stanley.....	1885	J. R. Moore.....	7	75	“ “
35	Toronto Island.....	1883	Frank Ward....	11	75	Cap. \$100 per month, mate \$80, 2nd mate \$70 and crew \$65, and 75c. per day, board allowance, during season of navigation.
36	Consecon.....	1898	R. Bedford.....	7	65	“ “
37	Southampton.....	1907	Hector McLeod.	7	75	“ “

NOTE—There are several other places in Canada, not regularly organized, which receive support from N.S., Cape Tormentine, N.B., and Wellington on Lake Ontario. There is also a life saving station at

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the Government—*Concluded.*

Description of Boat.	Cost.	Where Built.	Equipment.	Remarks.
	\$			
Doherty's Improved Beebe-McLellan, 25 feet long.	575	Vancouver Ship-yard Co.	Full regulation.	
Dobbin's pattern, self-righting and bailing.	750	Goderich, Ont..	" ..	
Beebe-McLellan self-bailing surf-boat.	375	Collingwood, O.	" ..	New boat in 1896.
Surf-boat.....	330	Collingwood, O.	" ..	New boat in 1892.
Beebe-McLellan self-bailing, surf-boat.	350	" ..	" ..	New boat in 1903.
Surf-boat.....	500	" ..	" ..	Station moved to east end of Point. Telephone communication being established.
"	350	" ..	" ..	A tramway has been constructed at this station.
Dobbin's pattern, self-righting and bailing.	620	Goderich, Ont..	" ..	
Beebe-McLellan surf-boat, self-bailing, 25 feet long.	350	Collingwood, O	" ..	
Dobbin's pattern, self-righting and bailing.	600	Goderich, Ont..	" ..	Fast motor boat being built. Removed from Popular Point in 1900.
" ..	750	" ..	" ..	Removed from Wellington in 1893.
Beebe-McLellan surf-boat, self-bailing.	330	Collingwood, O.	" ..	

the Dominion Government, where there is a life-saving service of more or less importance, such as Halifax, Victoria, B.C., maintained by the Victoria Life Saving Association.

APPENDIX No. 15.

CITADEL SIGNAL STATION, HALIFAX, N.S.

RECORD of Shipping as per record folio from April 1, 1911, to March 31, 1912.

Months.	Men of War, British.			Men of War, Foreign.			Steamers, 1st Class.			Steamers, 2nd Class.			Ships, Barques and Barquentines.			Brigs and Brigantines.			Schooners, 3 masted or bearing Pt. Signal.			Monthly Totals.		
	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.	R.	A.	P.
1911-1912.																								
April.....	1	1					68	68		36	36		2	2					8	8		115	115	
May.....	2	2					43	43		59	59		3	3					9	9		116	116	
June.....	1	1		2	2		45	44	1	65	65		4	4					13	13		130	129	
July.....	1	1					62	62		68	68		4	4					11	11		146	146	
August.....	2	2		1	1		55	53	2	76	76		1	1					13	13		148	146	2
September.....							60	58	2	64	64				1	1			7	7		132	130	2
October.....							66	65	1	62	62		2	2					8	8		138	137	1
November....	4	4					59	58	1	50	50		2	2					9	9		124	123	1
December.....							80	75	5	63	63								8	8		151	146	5
January.....							84	79	5	34	34								8	8		126	121	5
February.....							62	62		20	20								3	3		85	85	
March.....							82	77	5	25	25		2	2					6	6		115	110	5
Totals.....	11	11		3	3		766	744	22	622	622		20	20		1	1		103	103	1	5261	504	22

Total vessels reported..... 1,526
" arrived..... 1,504
" passed..... 22

F. C. KILBURN, Capt. R.C.E.,
Superintendent of Signals.

APPENDIX No. 16.

SABLE ISLAND.

SABLE ISLAND, December 16, 1911.

CHAS. H. HARVEY, Esq.,
Agent Marine and Fisheries,
Halifax, N.S.

SIR,—I beg to submit the following report for the current year on repairs, equipment, patrol and other information relating to the year's work.

WRECKS.

No known wrecks have occurred during the year. The stranded steamers *S. Kidley* and *Heimdal* are in not much worse condition than when last reported on.

BOATS AND APPARATUS.

A new Beebe McLellan self-bailing lifeboat was received at the first of the year. This boat was painted and fitted on the boat carriage at No. 1 station. The Beebe surf boat which it replaced was placed in the No. 4 boathouse north side.

No change was made in the rest of the life saving equipment and it is all in good condition.

PATROL.

The island was patrolled 63 times in the morning and 28 times in the evening.

STAFF CHANGES.

Gustaf Soderburg, keeper of No. 4 station for ten years and a member of the staff almost continuously for twenty-five years, owing to ill health resigned and was succeeded by James A. Ritcey, April 5.

Wm. Byrne, the carpenter for seven years, resigned in September, his place is not filled at this date.

REPAIRS, ETC.

The new 'Beebe-McLellan' lifeboat and two surf boats were painted two coats. Repair of shingles and new door in warehouse at No. 1, and new floor in barn now.

Seven miles of new telephone wire stretched and one mile new poles were erected and various repairs to line.

NO. 3 STATION.

Dwelling general repair. Raised and concrete blocking placed under it. Concrete cellar wall and a water tank of 1,400 gallons capacity built under it.

FARMING.

At No. 1 about the usual quantity of vegetables were raised, although the season was very warm and dry. 150 bushels mangels, 16 bushels carrots and 6 bushels of parsnips, 15 bushels beets, 75 bushels potatoes, 10 bushels turnips.

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English hay was below the average about 12 tons. Wild hay was not equal to a good year, but about 120 tons were made and stored over the whole island.

Stock killed—

8 beeves weighing 5,583 lbs.
7 calves weighing 420 lbs.
6 hogs weighing 900 lbs.

Stock on hand—

68 head horned cattle.
30 working horses.
2 imported mares.
2 imported stallions.
6 colts from imported stock from 2 to 3 years.

200 wild ponies.

5 hogs.

Shipped and ready to ship—

72½ brls. cranberries.
31 ponies.
1 working horse.
5 brls. salted hides.

Bedding and Sailors' Clothing—

10 mattresses, 40 prs. blankets, 10 spreads, 1 piece of ticking, 16 jackets, 13 prs. pants, 11 vests, 20 shirts, 13 caps, 12 suits underclothing, 30 prs. shoes, 17 prs. socks.

CENSUS.

Main Station.—Supt. R. Boutilier, wife and daughter, 3; Cook, John Borgal; Supernumerary, J. Dunn; Boatmen, Victor Horne, M. Noonan, A. Dunsworth, E. McGrath, D. Kennedy, 7—10.

No. 2 Station.—Keeper D. Henneberry, wife and three children, 5.

No. 3 Station.—Keeper, Stewart Glazebrook, wife and two children, 4; Assistant, A. Henneberry, 1—5.

No. 4 Station.—Keeper, J. A. Ritcey, wife and three children, 5; Assistant, E. DeYoung, Wm. White, 2—7.

West Light.—Keeper, John Edwards, wife and four children, 6; Assistant, C. Cleary, 1—7.

East Light.—Keeper, John Gregoire, wife and four children, 6; Assistant, Henry Nangle, 1—7.

Marconi Wireless Station.—Chief, J. J. Collins; Operators, Kelly, Gosse, Lawton; Cook, Blank—5.

Total—46.

Your obedient servant,

R. BOUTILIER,
Superintendent, Sable Island.

APPENDIX No. 17.

BOARD OF STEAMBOAT INSPECTION, CHAIRMAN'S REPORT.

OTTAWA, October 10, 1912.

To the Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit the annual report of the Steamboat Inspection Service of the fiscal year ending March 31, 1912.

It contains the work of the service during the time stated, giving the names and number of steamboats inspected in the several divisions and their gross tonnage, with the amount of dues collected from steamers employed in the carriage of passengers between Canadian ports but registered elsewhere than in Canada, and the amount of fees received for engineers' examinations, with the names of the candidates and their grade of certificate, &c.

INSPECTION STAFF.

Owing to the increased work in this branch, it was found necessary during the past year, to increase the inspection staff, Mr. G. M. Arnold being appointed steamboat inspector for the Toronto district, and Mr. J. M. Martin receiving the position of clerical assistant and ships tackle inspector at St. John, N.B.

In the month of January of the fiscal year ending March 31, 1912, the department lost the services of Hull Inspector, Mr. C. Seeley, of Halifax, N.S., and of Mr. L. Arpin, steamboat inspector, Montreal, the former dying on January 29, and the latter resigning on the 31st. Arrangements have been made towards filling the positions vacated.

NUMBER of Steam Vessels reported as known by the Inspectors of Steamboats in the Dominion for the year ending March 31, 1912, also the number of Steamers inspected but not registered in the Dominion for the same period.

Division.	Number of Dominion registered steamers.	Gross tonnage of Dominion registered steamers.	Number of steamers inspected but not registered in the Dominion.	Gross tonnage of steamers inspected but not registered in the Dominion.
Toronto.....	368	128,613	51	64,163
Collingwood.....	168	58,712	4	6,801
Kingston.....	186	43,350	21	8,143
Montreal.....	238	28,525	9	24,704
Sorel.....	112	48,349	.....	.....
Quebec.....	114	25,813	5	5,446
Nova Scotia.....	182	40,820	20	34,636
New Brunswick and Prince Edward Island ..	174	46,154	7	14,209
Vancouver and Yukon.....	266	38,129	8	4,713
Victoria.....	137	63,100	28	35,310
Manitoba and North West Provinces.....	186	24,755	9	15,671
Total.....	2,131	546,320	162	213,796

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NUMBER of Dominion Registered Steamers inspected and their gross tonnage, with amount of fees collected on account of steamboat inspection during the year ended March 31, 1912.

Division.	Number of Dominion registered steamers inspected.	Gross tonnage of Dominion registered steamers inspected.	Amount of fees collected on account of Steamboat Inspection.
			\$ cts.
Toronto.....	324	126,938	184 08
Collingwood.....	135	56,209	
Kingston.....	173	42,709	
Montreal.....	197	26,276	289 44
Sorel.....	100	44,893	
Quebec.....	104	25,200	323 12
Nova Scotia.....	159	39,626	2,311 91
New Brunswick and Prince Edward Island.....	144	25,658	
Vancouver and Yukon.....	239	36,501	91 36
Victoria.....	136	63,056	802 40
Manitoba and North West Provinces.....	122	22,063	
Total.....	1,833	509,129	4,002 31

BOARD MEETINGS.

In order to meet the steady growth of the steamboat inspection work in the Toronto Division, it was found necessary to appoint a new inspector. A board meeting was held for this purpose at Toronto from March 18 to 23, to examine Mr. George Medland Arnold, for the position of steamboat inspector. This gentleman having successfully passed the examination, was appointed.

The Shipping Federation of Canada having requested that certain changes be made in the rules governing steamboat inspection, a board meeting was convened on January 30, in the office of the chairman at Ottawa, and sat till February 1.

The first request to be considered was that discrimination at present existing against Canadian registered foreign trade cargo vessels be removed. The decision of the board was that the question was covered by Act of Parliament and that the board had no jurisdiction in the matter.

The second matter brought forward by the Shipping Federation was that provision be made for reciprocal inspection in so far as Canadian and British registered vessels are concerned. The board was of the opinion that to have such reciprocal inspection, it would be necessary to adopt the Board of Trade regulations, which led to a discussion as to the advisability or otherwise of subjecting marine boilers to an annual hydrostatic test of 50 per cent in excess of the working pressure. The board found that where boilers were large enough to be entered and efficiently examined, a hydrostatic test of fifteen pounds per square inch above the working pressure may be permitted at the annual inspection, if considered by the inspector sufficient in the interests of safety. No decision was arrived at regarding the reciprocal inspection.

Whilst the board was sitting, the question was brought up of service required to permit of engineers receiving marine certificates. It was decided not to recommend any changes in the qualifications as at present required.

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CASUALTIES.

The following are the casualties reported from the several divisions during the year ending March 31, 1912.

Toronto Division.

On June 24, 1911, a crank pin bolt of the SS. *Chicora* broke, this carried away the second bolt, the piston went through the bottom of the cylinder, the piston and top cover were also broken.

On August 21, 1911, the tug *C. C. Martin* foundered on Georgian Bay near French river, the entire crew of eight were drowned, the tug had the schooner *Albatross* in tow, the crew of which escaped in her yawl boat.

On August 21, 1911, the tug *Winslow* was totally destroyed by fire at Meldrum bay, Manitoulin island, the fire is supposed to have started in the coal bunkers.

Collingwood Division.

On May 17, 1911, the SS. *Emperor*, of Midland, broke the main engine crank-shaft, bed plate and thrust bearing braces on Lake Huron, the steamer was loaded with coal and with the assistance of a tug continued the trip to Fort William, unloaded and returned to Collingwood for repairs. Cause of accident was defective material in centre of shaft.

On June 23, 1911, the SS. *Turret Chief*, of Newcastle, G.B., while under way upward bound on Lake Superior, had a tube in starboard boiler burst. Casualties, one man killed and another badly scalded.

On November 17, 1911, the SS. *Turret Chief*, of Newcastle, G.B., upward bound on Lake Huron went ashore on Cove island, in a gale, was got off and repaired at Collingwood. No casualties.

On November 22, 1911, tug *Ahteeck*, of Sault Ste. Marie, burnt and sank in the vicinity of Richards Landing whilst proceeding from John Island to Sault Ste. Marie. Cause of fire unknown. No casualties.

On November 25, 1911, the SS. *Maud D*, of Toronto, was burnt at the dock at Midland. Cause of fire unknown. No casualties.

On December 4, 1911, the SS. *Wanita*, of Toronto, was burnt at the dock, Burks Falls, total loss, cause of fire unknown. No casualties.

Kingston Division.

April 20, 1911, SS. *Senator Derbyshire*, proceeding from Oswego to Brockville, broke mainshaft at the thrust ring, new one fitted and the vessel proceeded.

May 2, 1911, SS. *Aletha*, of Kingston, when leaving Kingston for Picton, main stop valve broke, vessel drifted ashore opposite Kingston. No fatalities. Vessel was got off and repaired.

July 12, 1911, the SS. *Caspian*, of Kingston, bound up the Bay of Quinte went ashore above Northport, vessel was got off and repaired. No casualties.

August 6, 1911, the SS. *Rosalind C*, of Toronto, destroyed by fire whilst lying at the wharf at Callander, Lake Nipissing. No person aboard at time. Cause of fire unknown.

Montreal Division.

May 30, 1911, the SS. *Filgate*, of Montreal, while lying at the wharf at Valleyfield was totally destroyed by fire. Cause of fire unknown. No casualties.

Quebec Division.

May 31, 1911, SS. *Quebec*, proceeding from Montreal to Quebec, while turning in the Richelieu river at Sorel went ashore, causing the loss of her rudder. She was towed to Quebec and new rudder fitted.

June 28, 1911, the SS. *General Wolfe*, of Hull, G.B., foundered and became a total loss off Murray Bay after being in collision with the SS. *Arranmore*.

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July 22, 1911, SS. *Amethyst* went ashore on Hutton Head, Newfoundland, total loss. No casualties.

August 20, 1911, tug *Chieftain III*, proceeding from Quebec to Montreal, was in collision with the SS. *Hero* and sank. Four of the crew drowned.

September 15, 1911, SS. *Natashquan*, proceeding from Natashquan to Quebec, propeller shaft broke losing propeller. The vessel was towed to Quebec and a new shaft and propeller fitted.

Nova Scotia Division.

April 7, 1911, SS. *Harlow* sunk in collision with ice, off St. Pauls island, returning from sealing trip. Vessel total loss. No casualties.

July 25, 1911, SS. *John Irwin* foundered off Isaacs harbour, vessel total loss, twelve lives lost.

November 15, 1911, SS. *Electra* ashore at Etang, total loss, no lives lost.

December 27, 1911, SS. *Kenwick* sunk after collision with SS. *St. Pierre Miquelon* two miles west of Country harbour. Vessel total loss. Three lives lost.

March 16, 1912, SS. *Bona Vista*, during heavy gale was driven ashore on Brier island. Vessel total loss. No lives lost.

New Brunswick and Prince Edward Island Division.

August 20, 1911, tug *Joseph*, while at work in St. John harbour fractured crankshaft, new shaft fitted.

September 7, 1911, SS. *Sincennes*, whilst lying at the wharf at Coles island, caught fire, wood upper works totally destroyed. Cause of fire unknown. Two lives lost.

January 14, 1912, SS. *Hamton*, whilst laid up at the wharf, North End, sprang a leak and sank. The vessel was afterwards raised, it is presumed leakage caused by ice.

On January 18, 1912, SS. *Majestic*, whilst laid up for the winter, caught fire between decks, a considerable amount of damage resulting. Cause of fire unknown. No lives lost.

*Manitoba and Northwest Provinces.**

October 9, 1911, the tug *Gordon Gauthier*, proceeding from Blind river to Port Arthur, caught fire, and was totally destroyed. Cause of fire unknown.

British Columbia and Yukon Division.

April 1, 1911, Dominion Government dredge *King Edward* and stern keel tug *Firefly* in collision, when attempting to pass through the draw span of the North Arm bridge, Fraser river, suction pipe, and 'A' frame of dredge lost. Aboard the *Firefly* the boiler shifted breaking steam pipe. No casualties.

May 3, 1911, the SS. *Hazel Dollar*, proceeding from Everett, Wash., to Hankow, China, stranded on possession Point, Puget Sound. Extensive damage done, vessel repaired and overhauled in Seattle. Resumed voyage August 3.

August 27, 1911, leaving Mororan, Japan, stranded on Ponmashiri shoal near Diakoku island. Vessel floated and finished voyage to Hankow, discharged and proceeded to Shanghai to dry dock where extensive repairs were again made.

May 21, 1911, SS. *La France*, bound down the Yukon river, went aground on Twelve Mile rock, Thirty Mile river. During the following night took fire and burnt to water line. Total loss. No lives lost.

May 30, 1911, SS. *Amur*, proceeding from Victoria to Skagway struck a rock in Wrangel Narrows, serious damage to starboard bilge and tank top. Temporary repairs were made to Wrangel, proceeded to Skagway and discharged. Returned to Victoria and laid up, owners not intending to repair.

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July 9, 1911, the SS. *Belfast*, of Vancouver, burnt to the water line at False Narrows, near Nanaimo, B.C., vessel laden with lime became a total loss, boiler and machinery salvaged. Cause of fire supposed to be spontaneous combustion. No lives lost.

September 17, 1911, *T. S. Venture* proceeding from Victoria to northern B.C. ports, struck heavily on a reef off Pender island, Johnston straits. Proceeded on voyage and on return to Victoria was repaired and returned to service.

October 12, 1911, tug *Hopkins* whilst attending fish traps off Sooke, Vancouver island, struck a rock, in fog off Simpson point and remained. Came off at flow of tide, returned to Victoria, was repaired and returned to service.

October 14, 1911, SS. *Princess Beatrice*, proceeding from northern ports to Victoria, stranded on Noble island, Christy passage, and remained. Was floated October 17, towed to Esquimalt. Extensive repairs made and returned to service.

October 22, 1911, tug *Noname*, during dense fog was in collision with SS. *Iroquois* of Seattle, U.S.A., off Sand Heads, Fraser river. Tug total loss. No lives lost.

November 14, 1911, tug *Chemainus*, lying at coal bunkers, Vancouver harbour, caught fire. Was scuttled to save hull and machinery, afterwards raised and towed to Chemainus where she was overhauled. Returned to service March, 1912.

November 17, 1911, *T. S. Henriette*, proceeding from Ketchikan, Alaska, to Vancouver, struck a reef off Whitley point, Dundas island, proceeded to Victoria, was repaired and returned to service.

November 26, 1911, SS. *Tees*, proceeding to ports on west coast of Vancouver island, struck a rock at Koksutle arm, Kyuquot sound, damaging propeller and twisting rudder stock. Was towed back to Victoria, new propeller and tail shaft fitted, also new rudder and stock. Returned to service.

January 19, 1912, tug *Storm King* struck a rock on Joyce point, Lewis channel, and settled aft in thirty feet of water. The boiler shifted, fracturing main steam pipe. The vessel was afterwards re-floated and repaired. No casualties.

I am sir,

Your obedient servant,

FRANK McLENNELL,

For Chairman Board of Steamboat Inspection.

APPENDIX No. 18.

RECORD of Live Stock shipped from May, 1911, to May, 1912, to ports in Great Britain.
FROM MONTREAL.

Months.	Sheep.	Cattle.	Horses.	Mules.	U. S. Cattle.
1911.					
May.....	2,708	8,183	94		3,187
June.....	496	7,653	9		4,346
July.....	280	9,513	5	96	4,319
August.....	2	6,657	15	49	1,949
September.....		4,281			904
October.....	239	6,287	7	50	93
November.....		3,392	8	125	893
Total.....	3,725	45,966	138	320	15,691

FROM ST. JOHN, N.B.

1911.					
December.....	1,199	874		52	754
1912.					
January.....	599	1,127			1,127
February.....			13	149	
March.....				174	
April.....			1	49	
Total.....	1,798	2,001	14	424	1,881
Total from Canada.....	5,523	47,967	152	744	17,572

COMPARATIVE STATEMENT of the number of Cattle shipped from Canada to British ports from the years 1902-3 to 1911-12.

	SHEEP.			CATTLE.			HORSES.			TOTALS.		
	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Montreal.	St. John.	Halifax.	Sheep.	Cattle.	Horses.
1911-12.....	3,725	1,798	Nil.	45,866	2,001	Nil.	138	* 14	Nil.	5,523	47,967	152
1910-11.....	248	2,508	"	72,555	3,301	"	497	19	"	2,756	75,856	516
1909-10.....	1,616	Nil.	"	94,314	4,632	"	286		"	1,616	98,946	286
1908-9.....	10,111	151	"	99,830	22,923	3,097	116	65	"	10,262	125,850	181
1907-8.....	11,585	4,168	"	96,977	20,210	Nil.	174	51	"	15,753	127,187	225
1906-7.....	10,791	1,371	"	128,160	38,148	"	661	57	"	12,162	159,308	718
1905-6.....	19,077	3,971	"	126,871	33,543	1,042	568	79	"	23,048	161,456	647
1904-5.....	49,422	17,283	"	108,553	33,833	745	279	213	"	66,715	143,131	492
1903-4.....	57,741	23,428	1,475	133,594	25,855	5,456	361	31	31	82,644	164,905	423
1902-3.....	61,017	19,310	426	147,201	37,453	3,856	373	115	17	80,753	188,510	503

APPENDIX No. 19.

REPORT OF OPERATIONS CARRIED OUT BY HARBOUR COMMISSIONERS OF MONTREAL, 1911.

Hon. J. D. HAZEN,
Minister of Marine and Fisheries.

SIR,—It is with continued satisfaction that the commissioners submit their report for the year ending December 31, 1911, for your approval. Notwithstanding the fact that the business for the previous years was the largest in the port's history, that done in 1911 was still greater.

This is not alone true in the sense of actual ship tonnage and trade volume, but also true in a constructional sense as the growth of the port in facilities and equipment during the past year has also exceeded in extent the same work done in any single previous year.

The commissioners, however, realize that Canada's growth is proceeding at a faster rate than the facilities to take care of her business are being created.

This fact alone accounts in a large measure for the serious problem of congested business which is met with at certain periods of the season. In this connection it must not be forgotten that converging at the port of Montreal are all the railways of Canada, the entire inland water-borne traffic, the ocean and maritime tonnage, the whole of which must be taken care of simultaneously with the construction and creation of much needed new facilities.

NEW STEAMSHIP LINES AND STEAMSHIPS.

During the past year the official inauguration of the new Cunard line service between London and Montreal, calling at Southampton, took place on June 3, with the arrival of the SS. *Ascania*. It is a matter of no little pride to record the fact that the oldest transportation company on the north Atlantic has been added to the shipping facilities of the port. A new service of steamships between the port of Montreal, New Zealand and Australia was also established by the New Zealand Steamship line.

The SS. *Toiler*, the first oil freighter in American trade, was also added, while the new Allan liner *Scotian* and White Star liner *Teutonic* were in service throughout the season.

MARINE INSURANCE RATES.

This object has been repeatedly brought to the attention of the commissioners with a view of obtaining some relief in a lower tariff on hulls and cargoes.

The president proceeded to Europe in May on the invitation of the minister to discuss this question with Lloyds in London. A carefully prepared statement showing the improvements to the channel, the modern aids to navigation installed and the constant reduction in number of accidents had already been presented to a special conference of underwriters held on March 8, at the 'Royal Exchange.'

The attitude of the underwriters was fair and generous with a hesitancy to declare anything definite until the experience of the route would justify the consideration of a re-adjustment of rates.

RETIREMENT OF MR. AIME GEOFFRION, K.C.

Mr. Aime Geoffrion, K.C., retired as counsel of the board, and was replaced by the Hon. A. R. Angers, K.C.

TRIP TO QUEBEC.

On the invitation of the Quebec harbour commissioners, the three members of the board, accompanied by the Deputy Minister of Marine and Fisheries, proceeded to Quebec on the tug *Sir Hugh Allan*, and were royally entertained by their Quebec confrères. An enjoyable day was spent in inspecting the different works in progress, including the Quebec bridge site.

Luncheon was served on board the government steamer *Druid* and dinner was offered the Montreal commissioners at Kent House in the evening.

UNVEILING MONUMENT TO HON. JOHN YOUNG.

October 4 His Excellency Lord Grey, the Governor General of Canada, unveiled the monument erected on Custom House Square by patriotic fellow citizens.

ST. HELEN'S ISLAND WHARF.

An agreement was entered into between the commissioners and the city of Montreal, whereby was constructed at the island a permanent ferry wharf. This new wharf is leased to the city for a term of years at a moderate annual rental.

NEW OFFICE BUILDING.

The growth of the grain business and traffic departments necessitated greater office accommodation, centrally located on the harbour front.

A site was consequently selected and a suitable office building erected for the accommodation of the different outside staffs connected with these departments. The size of the building is too great for the present needs of these staffs, so half the building has been leased to the Grand Trunk Railway Co. for its wharf traffic offices, and also to the Great Northern Quebec Railway Co.

TAXATION BY THE CITY.

During the year the civic authorities included in the civic assessment role the harbour property, upon which a value of \$18,612,150 was put. The annual tax on a basis of this valuation would mean an annual assessment on the harbour revenue of \$270,668.50.

As the harbour commissioners are only trustees for the Dominion government and the property taxed by the city belongs to the Dominion government, there seems to be little justice in the movement to tax Canada's national port. As the harbour revenue raised on the port's business now barely covers the interest charges on the money borrowed from the government an assessment by the city amounting to an annual sum of \$270,668.50 if found to be legal, would have to be met by doubling the present wharfage traffic, which would efficiently diminish the port's power as a competitor for North American trade.

DRY DOCK SITE.

Constant work on this important piece of construction was carried on throughout the season. Sixteen and a half acres of reclaimed land out of a total of thirty acres were completed; foundations for the permanent basin walls on one side were laid, and the basin itself and approach channel almost completed to the required depth.

Unless unforeseen conditions arise the commissioners look forward to the arrival of the floating dock during the summer of 1912. This will give to the St. Lawrence

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a dock capable of lifting a ship of 25,000 tons, or simultaneously repairing three smaller ships, virtually making three dry docks out of one. On the site adjoining the floating dock a complete ship repairing plant is to be erected, and an ultimate industrial development employing 2,000 men will be established.

ELGIN BASIN SEWER.

This nuisance caused by the emptying of one of the city's sewers into the Elgin basin, was, after repeated conferences with the city controllers, removed by an agreement with the city to close the sewer and divert the flow of sewage back into the Craig street tunnel at an estimated cost of \$150,000, the harbour commissioners and the city to pay half the cost of the construction and the city to take legal action to settle the question of responsibility.

In the mean time the work will be done, the nuisance removed and the court will decide the question of payment on the merits of the case presented. The time is fast approaching when the health of Montreal's citizens will demand a more modern treatment of the whole sewage question. Navigable rivers and harbours are not the proper places to discharge the sewage of great cities.

LIFE SAVING.

The usual distribution of life saving appliances, life buoys, poles, hooks and ladders at convenient places along the quays, and the weekly inspection of same, was carried out with care and regularity.

ROAD CLEANING AND SCAVENGING.

This department was kept unusually busy owing to the large amount of construction going on and performed its duties with credit.

PURCHASING DEPARTMENT.

This department takes care of the daily and immediate wants of all the other departments in the way of purchasing supplies and has had a satisfactory and successful year.

TRAFFIC DEPARTMENT.

Another very successful year has gone to the credit of this department which handles all the rail traffic within the harbour, except certain movements carried out by the railroad companies on their own allotments. With the completion of the high level railway as far east as the locomotive works, the rail terminals of the Harbour Commission now afford an all the year round rail connection for the transfer and handling of freight between the different railroads. Furthermore, to all industrial establishments choosing the east end for their development the exceptional opportunity is afforded whereby the cars of all railways have access on equal terms to and from their workshops, affording a 12 months' continuous freight service. This will make possible the creation of a large winter freight terminal, whereby all the harbour sheds may be turned into a collecting centre for the distribution of freight during the winter months. The central position of these sheds, in the heart of the city, accessible to all railways, and shortening the cartage, should develop into one of the most economic distributing points in Canada.

HARBOUR YARD AND LOCOMOTIVE HOUSE.

The present location of the harbour yard on Papineau ave., where large quantities of stores are kept, has always been inconvenient from its isolation and distance from the work as a distributing point.

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With the railway extension along the harbour front, the commissioners were able to select a new site adjoining harbour property and connected by rail with all parts of the river front. The purchase of 76,000 square feet of land was deemed advisable and the selection was made of a lot having a frontage on Notre Dame street of 385 feet and a frontage on the harbour of 399 feet.

Here are being erected the new reinforced concrete carpenter and blacksmiths' shops, machine shops, storehouses and offices. It is expected that considerable economy in time, handling and distribution will be affected by this change.

Here also is being erected a reinforced concrete locomotive house and repairing plant for the Traffic department, with coal towers and water supply for its use.

A large area of land is still available from this lot for development and extension.

NEW PLANT.

A new tug, the *John Young*, built at Sorel; and the *Beaver*, purchased from the Gilbert Company, were added to the towing fleet, as were also the dredge *Premier* and a 'drill scow.'

A new elevator hoist, capacity 15 tons, was erected at sheds Nos. 7 and 9 for the convenience of loaded teams to and from the upper stories of the sheds.

The ice-breaking tug *Sir Hugh Allan*, built at Barrow-in-Furness, by Vickers, Limited, arrived in June, having crossed the ocean under her own steam. This boat is the most powerfully engined now on the St. Lawrence, and is especially designed for clearing the basin and river of ice in the early spring and affording assistance to ships when necessary.

FLOATING CRANE.

This powerful lifting apparatus had the busiest year in its history and was constantly employed handling heavy freight which otherwise would have been shipped via a different port.

APPLICATION FOR NEW PERMANENT SHEDS.

The demand for increased first class accommodation greatly exceeds the present capacity of the harbour. To meet this as far as possible, the construction of an additional shed on the Victoria pier was commenced, and the erection of two permanent concrete sheds on the Tarte pier was undertaken, all of which have either been leased or spoken for by different shipping interests.

NIGHT NAVIGATION.

During the entire season the efficient buoying and lighting of the ship channel was much appreciated and contributed greatly to facilitate the arrival of incoming steamers and relieving congestion.

CHANNEL DEPTHS.

An unusually dry season—the dryest in fifty years—caused no little anxiety to ship-owners, but fortunately the low water depths of the channel, though causing much inconvenience, resulted in no casualty.

CHANNEL SWEEPING.

As usual, the ship channel within the harbour and the several basins were thoroughly swept in the spring and again in the fall, showing the depths to be well maintained.

FIRST VESSEL TO ARRIVE.

The SS. *Royal George*, Captain Harrison, arrived from sea on April 29, 1911.

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DISTINGUISHED VISITORS.

Earl Grey.

Sir Thos. Price, Commissioner of Railways and Harbours, Union of South Africa.

150 Bostonians.

National Editorial Association.

Board of Trade.

Chamber de Commerce.

Montreal Corn Exchange Association.

Bankers' Association.

Hardware and Metal Association.

Canadian Manufacturers' Association.

Dry Goods Association.

GRAIN TRADE.

Work on harbour commissioners' grain elevator No. 2, capacity of 1,750,000 bushels, was vigorously proceeded with during the season. The capacity of this elevator has been increased to 2,600,000 bushels.

FLOATING ELEVATORS.

It will be remembered that at the earnest solicitation of the Montreal Corn Exchange Association, these elevators were acquired by the harbour commissioners two years ago, and have done good service in assisting in handling grain from barge and lake carrier to steamship.

PAYMASTERS' DEPARTMENT.

The business of this department has naturally grown with the busy constructional programme under way. Periodical inspection by the commissioners' auditors has revealed a satisfactory and efficient system administered.

FIRE PROTECTION.

Throughout the season special care has been taken to maintain the efficiency of all reel stations and equipment, the fire tug *St. Peter* being in commission night and day.

Through the equipment of the Canadian Pacific railway tug *Cruiser* with fire and salvage pumps, and the addition to the Sincennes-McNaughton fleet of fire-fighting apparatus, the port now has better fire protection than ever before.

WIDENED PORTION OF COMMON AND COMMISSIONERS STREETS.

During the year judgment was rendered declaring that the widened portions of Common and Commissioners streets from McGill streets to Berri street was harbour property, and 200,000 square feet are available for further development and expansion which will soon be needed.

An agreement is being come to giving the use of this portion of the street to the city on an annual lease till required by the harbour commissioners, subject to six months' notice to cancel by either party.

HIGH LEVEL RAILWAY.

From the Victoria pier to the Racine pier, a distance of $4\frac{1}{2}$ miles, there now exists a high level railway giving a 12 months' service. All approaches to the wharfs east of the Victoria pier are now by subways, thus separating as far as possible the rail and the wheel traffic.

STRIKES.

In June a protracted strike movement was prevalent in British ports, the effect of which was felt to a considerable extent by St. Lawrence shipping, sailings being altered and business congested and passengers much inconvenienced.

In November, just at the close of the season, a strike broke out among longshoremen in the port, but was settled by friendly negotiation in two days.

WINTER USE OF STEEL SHEDS.

The commissioners have always hoped that the railways would be able to make the harbour front in the centre of the city with its fine wharf and warehousing sheds the assembling point for the distribution of winter freight. These sheds are now accessible to all railways throughout the winter continually by means of the completed high level tracks, which will afford the merchants a very much more central freight depot during the winter months than heretofore.

A start was made by the Canadian Pacific and Grand Trunk Railway Companies, who used sheds Nos. 7, 8, 9 and 11.

BOUNDARIES OF HARBOUR.

In the spring of 1909, Messrs. Joseph Rielle and J. P. B. Casgrain were instructed to survey, define and map the boundaries of the harbour of Montreal as constituted by Act of Parliament.

This very important work extending over two years has been completed in a very satisfactory and creditable manner, so that the port authority now has in its possession a complete set of accurate plans, covering sixteen miles of river front on either side of the river, in accordance with the amended Act extending the harbour limits.

GENERAL.

In creating the high level railways the problem of supplying adequate storage space for cars is one which makes the designing of an industrial harbour difficult and complex. Nevertheless, several sites will be available for the erection of large storage warehouses accessible to all railways, teams and vehicles, and fitted out in the most modern way, for the conservation of perishable products, and the assembling in Montreal of reserve cargoes for the ships.

The commissioners have again to acknowledge their appreciation of the loyal, effective work done by the different departments and their staffs that during the busiest year in the port's history have loyally worked together in an effort to achieve for Canada the prestige of possessing one of the best equipped sea-ports in the world.

To all the public bodies whose advice has been frequently sought and cheerfully given, the commissioners desire to express their grateful thanks.

Respectfully submitted.

GEORGE W. STEPHENS, President,

L. E. GEOFFRION,

C. C. BALLANTYNE,

Commissioners.

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REPORT OF SECRETARY-TREASURER OF THE HARBOUR COMMISSIONERS OF MONTREAL, FOR THE YEAR ENDING DECEMBER 31, 1911.

April 17, 1912.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries,
Ottawa, Ont.

SIR,—I have the honour, by direction of the Commissioners, to forward herewith, for the information of the Honourable the Minister of Marine and Fisheries, summarized statement of the operations of the corporation for the year ended December 31, 1911.

The receipts on revenue Accounts as compared with 1910 were as follows:—

	1911.	1910.
Wharfages on imports.. . . .	\$256,373 33	\$258,996 20
Wharfages on exports.. . . .	103,549 29	94,077 34
Wharfages, local traffic.. . . .	105,146 11	86,798 76
Switching cars.. . . .	147,291 74	124,801 79
Grain elevator No. 1.. . . .	112,573 18	94,428 55
Rental of harbour sheds.. . . .	100,499 97	100,599 97
Elevating grain, floaters.. . . .	45,111 25	41,287 95
Rentals of harbour tracks and properties..	33,949 42	34,057 29
Floating crane.. . . .	7,128 60	3,067 32
City of Montreal, interest—Laport bridge.	632 34	.....
	<hr/>	<hr/>
	\$912,255 23	\$836,115 17

The disbursements charged to revenue account were \$884,070.29, \$503,979.58 being interest, \$57,360.47 on account of property purchased for new harbour yard and buildings, the balance being for administration, operation and maintenance.

The amount disbursed on capital account was \$2,334,119.03, the principal items being as follows:—

Grain elevator No. 2 and jetty.. . . .	\$ 968,152 46
New Victoria pier and market basin.. . . .	326,057 66
Improvements, eastern section.. . . .	259,069 35
High-level railway.. . . .	187,640 22
Permanent sheds, Tarte pier.. . . .	92,389 56
Permanent shed, Victoria pier.. . . .	69,206 39
Sundry items.. . . .	436,603 39
	<hr/>
	\$2,334,119 03

Loans on capital account under the Act 9-10 Edward VII., Chap. 40, aggregating \$2,315,000, were received from the Dominion Government.

The Debenture Debt of the corporation on December 31, 1911, was \$16,607,000, of which \$1,872,000 is to the public, and \$14,735,000 to the Dominion government, upon which the average rate of interest is 3-31 per cent.

I have the honour to be, sir,

Your obedient servant,

DAVID SEATH,

Secretary.

HARBOUR COMMISSIONERS OF MONTREAL. SUMMARIZED STATEMENT OF OPERATIONS FOR THE YEAR 1911.

Revenue and Balance.	Revenue.	Capital.	Disbursements and Balance.	Revenue.	Capital.
	\$ cts.	\$ cts.		\$ cts.	\$ cts.
<i>Receipts, 1911.</i>					
Collector of Customs—			Advertising account.....	253 30	
Wharfage dues on imports.....	\$256, 373 33		Refund of wharfiges outward.....	266 35	
Wharfage dues on exports.....	103, 549 29		Buoys and beacons.....	576 67	
			Amnuty.....	600 00	
Switching cars.....			Fire protection.....	1, 500 00	
Wharfiges, local traffic.....	359, 922 62		Refund of wharfiges inwards.....	1, 656 54	
Grain elevator No. 1, elevating charges, &c.....	147, 291 74		Harbour survey.....	2, 024 60	
Rental of harbour sheds.....	105, 146 11		Harbour lighting.....	9, 335 45	
Elevating grain, floaters.....	112, 573 18		Miscellaneous expenses, printing, stationery, travel- ling, legal and notarial, &c.....	11, 046 09	
Rental of harbour tracks and properties.....	100, 499 97		New harbour yard.....	13, 141 05	
Floating crane.....	45, 111 25		Salaries, commissioners and staff.....	48, 597 34	
City of Montreal, interest—Laporte bridge.....	33, 949 42		New harbour yard building.....	44, 219 42	
	7, 128 60		Harbour repairs, harbour tracks, &c.....	181, 785 41	
	632 34		Interest.....	352, 768 70	
	912, 255 23		Harbour Sheds—		
			Interest on cost.....	\$100, 200 48	
			Insurance, maintenance, &c.....	11, 674 54	
				111, 875 02	
Dominion Government—			Grain Elevator No. 1—		
Under Act 9-10, Edward VII, Chap. 40.....	2, 315, 000 00		Interest on building and conveyors	47, 095 21	
Receipts on revenue account.....	912, 255 23		Wages, power, &c.....	49, 022 84	
			Floating Crane—		
			Interest on cost.....	3, 915 19	
			Wages, &c.....	4, 341 11	
			Elevator No. 1, new marine tower.....		
			Harbour sheds equipment.....		
			New wharf section 37.....		
			Windmill Point piling.....		
			Windmill Point culverts.....		
			Reconstructing raceway.....		
			Harb. of Montreal, defining boundaries.....		
			Plans for harbour improvements and extensions.....		
			Racine pier, pile wharf.....		
			Harbour railway siding, &c.....		
Sundry Receipts—					
Security deposits from sundry con- tractors.....	\$ 35, 111 60				
Plant sold.....	1, 300 00				
Balance from 1910.....					

99 27
925 76
1, 252 96
1, 922 91
2, 553 65
5, 377 54
7, 070 00
10, 771 76
14, 677 80
16, 248 82

8, 256 30

96, 118 05

111, 875 02

352, 768 70

44, 219 42

48, 597 34

13, 141 05

11, 046 09

9, 335 45

2, 024 60

1, 656 54

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Electric hoist No. 2, King Edward pier.....	22,177 44
St. Helen's Island ferry wharf.....	23,118 51
Wharf office building.....	32,128 66
New dredge No. 6.....	52,152 94
Permanent shed, high level, Victoria pier.....	69,206 39
Permanent sheds, Tarte pier.....	92,887 56
Grain elevator No. 2, Jetty & Quay wall.....	116,535 36
Inspection tug, <i>Sir Hugh Allan</i>	120,998 26
Dredging and filling.....	125,129 11
High level railway.....	187,640 22
Improvements, eastern section.....	259,069 35
New Victoria pier and market basin.....	326,057 06
Grain elevator No. 2, building and equipment.....	846,617 10
Disbursements on capital account.....	2,334,119 03
Disbursements on revenue account.....	884,070 29
Total disbursements.....	3,218,189 32
Security deposits refunded.....	7,037 85
City of Montreal, dep. re Elgin basin sewer.....	75,000 00
Less, payable at 31st December, 1911—	
Interest accrued and coupons out-	
standing.....	\$258,480 55
Outstanding accounts.....	186,736 16
Less, outstanding 31st December, 1910.....	445,216 71
Balance at 31st December, 1911—	
Cash on hand.....	\$ 1,529 10
Bank of Montreal—	
Coupon acct.....	200 00
Current acct.....	68,180 92
Discount on debentures H. & J.....	69,910 02
Sundry accounts receivable.....	10,016 23
Value of materials in stock.....	216,875 30
	103,075 15
	399,876 70
	3,656,930 44

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REPORT OF THE SUPERINTENDENT OF RAILWAY TERMINALS FOR
THE YEAR 1911.

DAVID SEATH, Esq.,
Secretary.

DEAR SIR,—I beg to submit for the information of the commissioners a report of the operations of the Traffic Department during the year 1911.

WINTER OPERATIONS.

The quick-acting gate installed in the flood wall at the McGill street opening gave a continuous service to and from the wharf during the winter. This gate can be opened or closed in less than three minutes and during the high water period it was found of great advantage. The winter's business consisted of the steamship freight from West St. John for the Canadian Pacific railway, local freight for loading and unloading on the wharf and transfer business from both the Grand Trunk and Canadian Northern Quebec Railway companies.

As compared with last year this business shows an increase of over 45 per cent.

CAR HANDLING.

On April 29 we received the first cars of export freight of the season. The car receipts during the year were the greatest in the history of the department, giving an increase of 16 per cent over last year.

The traffic was exceptionally heavy the whole year round, no midsummer slackness being noticed, and every month of the season of navigation showed an increase over the previous year. The increase in shed car handling is not so noticeable, presumably, owing to the shifting to the east end of the harbour of two of the steamship lines operating from the sheds at the west end last year.

The interchange of cars between the railway terminals at the east and west ends of the city, via the harbour tracks, is constantly making gains; this year's business more than doubled that of 1910.

CARE OF PLANT.

The commissioners' five locomotives were sent to the Montreal Locomotive Works at Longue Pointe for general overhauling during the closed season and worked throughout the season of navigation, the minor repairs being effected as required by the commissioners' staff under rather trying conditions, being constantly exposed to the vagaries of the weather, which made work of this kind exceedingly difficult at times. The completion of the locomotive house will be of great help to this branch of the work.

IMPROVEMENTS AFFECTING THE TRAFFIC DEPARTMENT.

The harbour improvements affecting the operation of the railway traffic which were begun last year were proceeded with during this season. During the winter months steel bridges were erected at all ramps on the wharf from sections 19 to 47, replacing the temporary wooden structures.

The double track on the railway embankment was extended from section 47 to 55 (Molson's Creek) and the high level embankment, which last year had been built as far as section 55, was continued to Racine Pier, section 62, upon which a single track was laid down but was not put into service this year owing to the lateness of the season when it was completed.

This extension will enable us to give a railway service to the industries located near the river front at the east end of the city and, without a doubt the business that will be derived therefrom will, within a short time, considerably increase the revenue of this department. This also supplies a connection with the dry-dock site for the

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railway traffic. The Canadian Northern Quebec railway erected an overhead bridge, crossing Notre-Dame street at section 55, and the harbour tracks were elevated to connect with their tracks, thereby doing away with the level crossing.

A spur siding was put in at section 48 connecting the high level tracks with the low level wharf and was found very useful for the winter's business.

GENERAL REMARKS.

The railway business has attained such proportions as would warrant serious consideration being given to its interest, and from present indications we may look forward to a larger increase in the volume of business during the coming season of navigation than at any other time since the organization of this department. It would therefore be a matter of expediency to consider, in the future schemes of harbour improvements, the immediate relief of traffic congestion. To this end it would be necessary to object firmly to any proposition that will tend to eliminate existing facilities or prevent future development of accommodation for the operating of railway business.

We look with pride to our record in handling the traffic in the past, and to keep up the standard of efficiency we must be given track facilities compatible with the augmented car handling.

Yours very truly,

J. VAUGHAN,

Superintendent of Railway Terminals.

REPORT OF THE HARBOUR MASTER OF THE PORT OF MONTREAL FOR THE YEAR 1911

OFFICE OF THE HARBOUR MASTER,

MONTREAL, January 31, 1912.

DAVID SEATH, Esq.,
Secretary Harbour Commissioners
of Montreal.

SIR,—I beg to submit, for the information of the harbour commissioners of Montreal, the following as my annual report for the year 1911.

Appended hereto will be found five comparative statements for the past ten years:—

1. Table showing the number and tonnage of all vessels that arrived in port.
2. Table classification of transatlantic vessels that arrived in port.
3. Table classification of vessels from the lower St. Lawrence and Maritime Provinces that arrived in port.
4. Table showing the number and tonnage of sea-going vessels belonging to the different nationalities that arrived in port.
5. Table showing the opening and closing of navigation, the first arrival and last departure of vessels, and the greatest number in port at one time.

It will be seen that 401 transatlantic vessels arrived in port during the past season, with a tonnage of 1,695,613 tons, an increase of 40,199 tons, from the previous year.

The arrivals from the Lower St. Lawrence and Maritime Provinces were 361 vessels, with a tonnage of 642,639 tons, an increase of 35 vessels and 67,831 tons from the previous year.

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Of inland vessels there arrived during the season 11,670 vessels, with a tonnage of 4,275,019 tons.

The combined Transatlantic, Lower St. Lawrence and inland tonnage, therefore, for the season, amounts to 12,432 vessels, with a tonnage of 6,613,271 tons, an increase of 52,250 tons, from the past season of 1910.

A great many vessels took advantage of the still water basin, sections 12 to 19, to lie over during the winter of 1911-12. In addition to the commissioners fleet, 58 vessels were so wintered. No charge was made for this privilege.

The whole respectfully submitted,

JAMES McSHANE,
Harbour Master.

PORT OF MONTREAL.

STATEMENT showing the Classification of Transatlantic Vessels that arrived in port during the past Ten Years.

Year.	Steam-ships No.	Tonnage.	Barques No.	Tonnage.	Ships & Brigs No.	Tonnage.	Schooners No.	Tonnage.	Grand Total Vessels.	Tonnage.
1902.....	418	1,063,220	9	4,427	.....	.....	9	2,891	436	1,072,558
1903.....	476	1,414,595	2	1,388	1	1,543	5	1,030	484	1,418,156
1904.....	408	1,267,088	3	1,144	1	318	5	2,090	417	1,270,644
1905.....	422	1,357,517	3	2,324	.....	.....	17	14,988	442	1,134,825
1906.....	420	1,372,879	3	1,872	.....	.....	16	6,084	439	1,380,833
1907.....	381	1,339,014	.....	.....	.....	.....	.....	.....	381	1,339,914
1908.....	364	1,315,638	.....	.....	.....	.....	.....	.....	364	1,315,638
1909.....	371	1,436,963	.....	.....	.....	.....	.....	.....	371	1,436,963
1910.....	410	1,656,794	.....	.....	1	1,620	.....	.....	411	1,638,414
1911.....	401	1,695,613	.....	.....	.....	.....	.....	.....	401	1,695,613

JAMES McSHANE,
Harbour Master.

PORT OF MONTREAL.

COMBINED STATEMENT showing the number and tonnage of all Vessels that arrived in Port during the past Ten Years.

Year.	TRANS-ATLANTIC.		MARITIME PROVINCES.		INLAND.		GRAND TOTAL.	
	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.	Vessels.	Tonnage.
1902.....	436	1,072,538	322	468,734	9,395	1,883,150	10,153	3,426,522
1903.....	484	1,418,156	318	472,748	15,358	2,415,791	16,140	4,306,695
1904.....	417	1,270,640	379	586,057	10,063	2,354,975	10,859	4,211,672
1905.....	442	1,354,829	391	585,227	11,112	2,788,551	11,945	4,725,607
1906.....	439	1,380,835	381	592,388	12,557	3,095,174	13,377	5,068,395
1907.....	381	1,339,014	361	586,972	14,420	3,620,950	15,161	5,546,936
1908.....	364	1,315,688	375	642,916	12,434	3,589,124	13,173	5,548,028
1909.....	371	1,436,963	299	474,450	10,991	3,146,494	11,661	5,057,907
1910.....	411	1,658,414	336	574,808	13,636	4,327,799	14,383	6,561,021
1911.....	401	1,695,613	361	642,639	11,670	4,275,019	12,432	6,613,271

JAMES McSHANE,

Harbour Master.

PORT OF MONTREAL.

STATEMENT showing the Classification of Vessels that arrived in Port, for the last Ten Years, from the Lower St. Lawrence and Maritime Provinces.

Year.	STEAMSHIPS.		SCHOONERS.		GRAND TOTAL.	
	No.	Tonnage.	No.	Tonnage.	No.	Tonnage.
1902.....	311	466,671	11	1,063	322	468,734
1903.....	303	468,100	15	4,648	318	472,748
1904.....	366	582,819	13	3,238	379	586,057
1905.....	364	580,485	26	4,116	391	585,127
1906.....	367	588,980	14	3,408	381	592,338
1907.....	343	579,930	18	7,042	361	586,972
1908.....	350	640,244	25	2,672	375	642,916
1909.....	273	470,936	26	3,514	299	474,450
1910.....	306	572,022	30	2,786	336	574,808
1911.....	330	639,752	31	2,887	361	642,639

JAMES McSHANE,

Harbour Master.

PORT OF MONTREAL.

STATEMENT showing the nationalities and tonnage of sea-going vessels that arrived in port, during the season of 1911, that were navigated by 61,183 seamen.

NATIONALITY.	Number of Vessels.	Tonnage.
British.....	572	1,879,070
Norwegian.....	165	387,750
German.....	17	52,879
Dutch.....	3	5,506
Belgian.....	2	11,577
American.....	2	1,204
French.....	1	266
Totals.....	762	2,338,252

Of the above 731 were of iron or steel with a tonnage of 2,335,365 tons, and 31 were built of wood, with a tonnage of 2,887 tons.

JAMES McSHANE,

Harbour Master.

PORT OF MONTREAL.

STATEMENT showing the dates of the opening and closing of navigation, the first arrival and the last departure for sea, also the greatest number of vessels in port at one time, during the past ten years.

Years.	Opening of Navigation.	Closing of Navigation.	First Arrival from Sea.	Last Departure for Sea.	Greatest Number of Vessels in Port at one time.			
					Sea-going.		Inland.	
					No.	Date.	No.	Date.
1902.....	April 3	Dec. 4	April 17	Dec. 4	29	Oct. 9	109	July 23
1903.....	" 2	" 10	" 26	Nov. 28	33	June 8	223	June 26
1904.....	" 25	" 9	May 4	" 27	23	Sept. 10	180	July 13
1905.....	" 19	" 12	" 2	" 30	27	Oct. 4	175	June 19
1906.....	" 20	" 2	April 28	Dec. 2	26	May 28	124	July 8
1907.....	" 23	" 15	May 2	Nov. 29	29	" 24	103	" 8
1908.....	" 22	" 10	April 30	" 26	24	June 21	104	June 30
1909.....	" 16	" 27	" 23	" 28	22	Nov. 9	107	Aug. 31
1910.....	" 1	" 7	" 11	Dec. 1	25	May 18	122	Sept. 18
1911.....	" 23	" 29	" 26	" 3	24	Aug. 18	85	June 5

JAMES McSHANE,

Harbour Master.

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REPORT ON THE WORKS FOR THE IMPROVEMENT AND MAINTENANCE
OF THE HARBOUR OF MONTREAL FOR THE YEAR 1911.

F. W. COWIE, M. INST. C. E., CHIEF ENGINEER.

MONTREAL, February 1, 1912.

DAVID SEATH, Esq.,

Secretary, Harbour Commissioners of Montreal.

DEAR SIR,—I have the honour, by direction, to present the following annual report on the operations for the improvement and maintenance of Montreal harbour during the year ended December 31, 1911.

The assemblage at Philadelphia, Pa., in May, 1912, of the 12th International Congress of Navigation will mark a distinctive point in the advance of navigation interests in North America.

The attention of those most celebrated and skilful, throughout the world, engaged on the great questions of navigation and commerce, will be focussed at that international gathering on all important interests affecting the progress of inland and maritime navigation in North America.

The port of Montreal and the ship channel to the sea may furnish to that congress a unique picture of the effect of improving navigation and its resultant bearing on one of the most important routes of maritime commerce in the New World.

It would appear fitting, therefore, that to the members of the International Congress of Navigation a special report of the Montreal Harbour Commissioners should be presented, giving an outline of the history of the development of the port and its progress up to the present time.

Illustrations are also given showing Montreal Harbour in its undeveloped stage in 1830 and again in its present condition in 1912 showing the extensions in progress.

THE DEVELOPMENT OF THE PORT OF MONTREAL.

THE PAST.

The Harbour in 1824.—The results of determination, skill and public spirit, in connection with the development of Montreal harbour, may be given in a summing up of the physical conditions and steady growth, from 1830 up to the present time.

It will be eighteen years yet before the harbour may celebrate its centennial. In 1930 it may be expected that a memorial may be proposed to commemorate the development of 100 years, and it would appear fitting that it should be placed on the height of St. Helen's Island, 130 feet above the river, where overlooking the full extent of the port, it would, from the city, crown a vista of that beautiful city park.

It would be hard to imagine a more hopeless outlook than existed in the Harbour of Montreal, as indicated on Bouchette's plan of 1824.

The first Lachine canal was only completed in 1825, having a depth over the sills of 4½ feet, and is not shown on that plan.

Two stone windmills marked the progress of industrial development to the westward of what is now McGill street. They were situated on the top of the open beach. The Grand Trunk Railway Company's elevator now stands on the site of the water front of 1824.

A small wharf 200 feet long existed, providing a depth of water of 9 feet, in the position of the flood wall opposite the present harbour commissioners' office. Another irregular wharf known as Berthelette's wharf existed between the harbour commissioners' office and the Custom House.

From the Little River, now the Custom House, downward, the beach was unimproved except by the construction of sloping roadways down to the water.

The soundings shown on the early plan of Bouchette show interesting features in connection with the flow of the St. Lawrence. Shallow water, even points of exposed rocks, are indicated two-thirds of the distance across to St. Helen's Island. A much larger proportion of the flow of the river must have passed down the channel to the south of St. Helen's Island, in the early days before the Moffatt's Island wharf was built.

The size and type of the vessels trading to Montreal may be imagined from the fact that Lake St. Peter limited the draft to 11 feet, and even that depth was not available at any of the wharves in the harbour. The shipping trade of a whole season, 80 years ago, could have been carried in one or two of the modern ships which now frequent the port.

At that time inland navigation commenced at Lachine. Goods for Upper Canada were carted to Lachine and from there taken up the Haldimand canals in bateaux about 35 feet long and 5½ feet beam, built of the type of a modern raft boat with pointed bow and stern.

The improvement of the harbour was, in 1824, one of the important questions in Canada, as it is to-day.

The First Improvements.—On May 8, 1830, George Moffat, Jules Quesnel and Captain Robert S. Piper, R.E., were appointed commissioners under the Great Seal of the province of Lower Canada and signed by His Excellency the Governor at the Castle of St. Louis, for the purpose of carrying into effect an Act of the Provincial Legislature, 10 and 11 Geo. IV., Cap. 28: 'An Act to provide for the improvement and enlargement of the harbour of Montreal.'

The first works undertaken were for the construction of wharves, ramps, slips for Durham boats, a revetment wall and a bridge to Oyster Island, which was to be the principal wharf.

In their first annual report the commissioners stated that they confidently anticipated that the wharves undertaken, when completed, would be superior to any works of the kind in the province, and would enable the city of Montreal to be advantageously contrasted with any other in North America for beauty, solidity and convenience of approach by water.

The appropriation for the first three years amounted to 81,000 pounds sterling.

The annual report for 1833 was very brief. There was no appropriation for further improvements, the revenue was disappointing, and the dues were evaded. The staff was discharged, 'commencing with the engineer,' the secretary alone being retained, but at a reduced salary of 50 pounds per annum.

This was the first attempt made to improve the harbour of Montreal by a commission. The commissioners had the same faith in the future of the harbour and the courage of undertaking works which has characterized the administration from 1830 to the present time. The present harbour of Montreal rather justifies the modest boast of the commissioners of 80 years ago.

Schemes for harbour improvement.—The first plan of improvement was prepared by Robert S. Piper, R.E., in 1829. It was improved by Peter Fleming, C.E., in 1830, and carried out by the first commissioners.

Since 1830 some of the best engineers in Canada, the United States and Great Britain have from time to time been called upon to investigate and submit plans for improvements.

Messrs. Gzowsky, Keefer, Forsythe, Trautwine, Legge, Nish and Sippell all submitted schemes up to 1873. In 1875 Mr. Robert Bruce Bell, Major General Newton and Mr. Sandford Fleming were called upon to draw up a report and plan for the improvement of the harbour. The advice of the prominent business men of Montreal as to the needs and characteristics of the required improvements was taken, and it is interesting to note such evidence as that given by Mr. D. A. P. Watt, representing the shipping and grain trade, in the engineers' report of 1877:—

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'Montreal is the forwarding factor of producers and consumers of the continent.'

'The accommodation provided has always been poor and deficient, and in cases of a press of business the break down has been most lamentable.'

'Any scheme would be inadequate which did not provide the means of regular and continuous increase.'

'The water should be free from currents, and should, as far as possible, be of uniform height.'

'I deem it to be the duty of the harbour commission to go on, to keep not merely abreast of, but steadily in advance of all possible requirements, and to anticipate an increase of revenue by providing a liberal increase of accommodation.'

'If we could get space to discharge twice the number of vessels it would be ample accommodation for ten years to come.'

In 1880, James Shearer's scheme, designed by Bateman, was submitted, but turned down after a vigorous argument.

Mr. John Kennedy, for so many years chief engineer of the harbour commissioners, has not only designed but carried out many of the improvements now existing.

In addition to the above-mentioned and many other schemes proposed for the improvement of the port, the Montreal Flood Commission made extensive investigations and a valuable report on questions of great importance to the harbour.

The recommendations of this commission, consisting of Messrs. Perley, Kennedy, St. George and Keefer, included many propositions which have since been carried out to advantage.

St. Lawrence canals.—The Haldimand canals were the beginning of the St. Lawrence canal system. They were built by the Royal Engineers between 1779 and 1783, particularly for the transportation of military stores. These connected Lake St. Louis with Lake St. Francis and provided for 3-foot navigation. The depth was increased to 4 feet in 1804, by the enlargement of the locks.

The Lachine canal, projected as early as 1701, was finally undertaken by the Government of Lower Canada in 1821, and the first canal completed in 1825. It was at this time that the necessity of improving the harbour of Montreal first became pressing.

Between 1841 and 1848 all the canals were completed, providing for a 9-foot waterway from Montreal to the head of the Great Lakes. Sixty years ago, therefore, a vessel drawing 9 feet, almost the full depth available from Montreal to Quebec, could carry a cargo of 500 tons from the lakes to Montreal. Since that time the railways, the canals, the River St. Lawrence ship channel and the harbour of Montreal have had a race to keep pace with the growing commerce.

THE PRESENT.

Harbour authority.—The harbour authority is the harbour commissioners of Montreal.

Major George W. Stephens, president; L. E. Geoffrion, Esq., and C. C. Ballantyne, Esq., commissioners.

The commissioners hold in trust all harbour lands and areas from the Government of Canada and develop and administer according to authority received from His Excellency the Governor General of Canada in Council.

The jurisdiction of the harbour commissioners extends over the whole of the River St. Lawrence, with the exception of the ship channel, from Bout de l'Isle to above Victoria bridge, a distance of 17 miles. This area comprises all the land under water and the beaches up to high water mark, including the whole of Ile Ronde. Thus the whole of the water front on both sides of the river is under the jurisdiction of the commissioners, who hold it in trust and administer it for the Government of Canada.

The total water area is 12,000 acres.

The total land area, improved, is 200 acres.

The present harbour represents a development of 80 years.

The Type of Port.—The port type is a combination of a protected tidal basin, riverside quays and pier jetties. There is no rise and fall of tide, but the river level fluctuates to an extent of about 12 feet from high water in the spring to low water in the autumn. During the winter, due to ice shoves, the water occasionally rises to an extreme of 28 feet above the low water level.

An artificial embankment, parallel to the shore, about one and one-third miles long, protects the whole of the upper part of the harbour, including the entrance to the Lachine canal, from not only the currents of the river but from ice shoves. This constitutes the protected tidal basin in which the water rises and falls with the river level.

It has not been necessary to purchase any land above the high water mark on the beach, as all piers and wharves have been made artificially by building out into the shallow water and the berths formed by dredging.

From the entrance to the protected basin for about two and one-half miles downstream, to Hochelaga, the river channel is too much contracted to permit of the construction of piers or jetties, and this part of the harbour is developed as riverside quays, sufficient width for harbour purposes being obtained by building the quay-walls in deep water and filling in the area behind to give a width of from 100 to 250 feet.

Below Hochelaga, where the river section is larger, piers have been built out into the river, inclined so as to give an easy angle of approach from the ship channel.

Features of success.—The success of the port is due primarily to its early development, before any of the water front had been alienated from the Crown, and to its geographical, physical and trade situation. No rights or franchises stand in the way of further extensions, and the sentiment of the country is in favour of a continuance of the policy of retaining the whole harbour area in the public interests.

The facility of approach both by ocean vessels, inland vessels and railways to a convenient point of transfer makes Montreal almost unique, there being nothing in the way of close connection for the traffic from all points, and almost in the heart of a large and growing city.

Approach channel.—Almost every port has the problem of obtaining the necessary depth of approach and economically maintaining it. Montreal has the magnificent St. Lawrence with water free from sediment, where the channel can be made at almost any required depth with a reasonable expenditure and without the usual expense for maintaining it.

Ship Channel.—The construction and maintenance of the River St. Lawrence ship channel, which is a remarkable engineering feat, is now under the care of the Department of Marine and Fisheries of Canada. It was, however, from 1850 to 1888, the project and work of the harbour commissioners of Montreal.

There is at present a navigable channel from the sea to Montreal of 30 feet at extreme low water, although advantage has to be taken of the tide at Cap a la Roche, St. Augustin and the St. Thomas Flats below Quebec. The splendidly organized government dredging plant is, however, rapidly completing the work, so that the 30 feet draft will be available at all stages of the tide.

The Hon. L. P. Brodeur, Minister of Marine and Fisheries, announced to the Shipping Federation of Canada during the inspection trip of October, 1909, that the department had commenced the project of deepening the channel to 35 feet.

During the last few years the range lights, buoys and other aids to navigation of the St. Lawrence, as placed by the Department of Marine and Fisheries of Canada, have earned for the route the title of being the best lighted and safest river channel in the world.

Geographical situation.—Montreal harbour is also the terminus of the St. Lawrence Canal system. This canal system affords navigation between Montreal and

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Lake Erie, a distance of 300 miles, for vessels of 14 feet draft and a carrying capacity of 2,500 tons. From Lake Erie to the head of Lake Superior vessels are able to navigate with a draft of 20 feet and a carrying capacity of 10,000 tons. The inland navigation centering in Montreal therefore commences either by the all-lake route of 1,600 miles and vessels of 14 feet draft, or by the lake-and-rail routes, using the 10,000-ton boats to Georgian Bay ports or Port Colborne, and connecting with Montreal either by short-haul rail route or the St. Lawrence canals.

Montreal is the natural seaport for seven months in the year of the Canadian provinces of Ontario, Manitoba, Saskatchewan and Alberta, and also of a large portion of the northwestern states extending from Chicago to St. Louis and Denver.

Physical features.—The season of navigation opens each year during the last week of April and closes during the last week of November. With the improved aids to navigation, and assured by the ice breakers of the Canadian government, navigation may be stated to commence on April 24 and close on December 1.

In 1907, after most of the buoys in the river had been removed, SS. *Dunelm*, of over 2,000 tons, navigated up the St. Lawrence to Montreal, arriving in port on December 13. The courses for navigation were only marked by the splendid system of permanent range lighthouses and were quite sufficient for this vessel, navigating only during the day.

The clear, fine weather at Montreal and vicinity during the season is very favourable for navigation. Fogs are unusual and ships are enabled to pass between Montreal and Quebec without much delay. Smoke is occasionally experienced, but rarely causes delay.

In midwinter and early spring snow storms are very severe, but followed by clear, fine weather.

The prevailing winds are westerly, and as a rule blow almost straight down the river. Easterly winds with high barometer are usually of short duration, and more severe and frequently accompanied by rain.

The currents of the St. Lawrence between Quebec and Montreal vary from an extreme of 6 knots to a minimum of 1 knot, on Lake St. Peter. They are uniform, and in the design of the channel great care has been exercised not to produce cross currents, and for 100 miles below Montreal the stream is always downwards, even though there may be a slight tide.

The water level of the St. Lawrence, during the season of navigation, is highest in April and May, and gradually falls to its lowest level in October and November.

The following table gives a comparison of the monthly averages of the depth of water on the old No. 1 Lachine canal lock sill, with the corresponding depth in the harbour and ship channel.

Month.	Average 1899 to 1908.	Average 1909.	Depth in Harbour Channel.
May.....	21 ft. 6 in.	23 ft. 5½ in.	38 ft. 10½ in.
June.....	19 " 1 "	20 " 11 "	36 " 4 "
July.....	17 " 6 "	17 " 6 "	32 " 11 "
August.....	16 " 4 "	16 " 10 "	32 " 3 "
September.....	15 " 6½ "	15 " 11 "	31 " 4 "
October.....	15 " 6½ "	15 " 5 "	30 " 10 "
November.....	15 " 5 "	14 " 9½ "	30 " 2½ "

The spring floods, due to the ice conditions, are occasionally extreme, and in former times damage was done in the city and harbour by these floods with their accompanying ice shoves. Since the construction of the guard pier the high level wharfs and the flood wall, the city and harbour have been practically free from such damage.

TABLE OF ELEVATIONS.

Lower sill of old Lock No. 1, Lachine Canal.....	Zero.
Extreme low water level.....	13 ft. 0 in.
Ordinary summer level.....	17 " 0 "
Elevation, low level wharves.....	23 to 25 ft.
Highest water, 1909.....	37 ft. 7 in.
Ordinary spring flood level.....	36 " 6 "
Elevation, high level wharves.....	38 " 0 "
Floors of permanent freight sheds.....	42 " 0 "
Highest flood level.....	44 " 4 "
Elevation top of flood wall.....	46 " 0 "

Construction conditions.—Construction operations are limited to the open season and average about seven months in the year. The weather is usually very favourable for construction, and delays are not frequent.

Labour conditions are of the best. Men are always available of a good steady type, ready to do a good day's work. The rates of pay vary, averaging \$2 per day of ten hours for labourers, \$3 for carpenters, \$3 for mechanics and \$4 for foremen.

Materials are also available at the lowest market prices. Timber of all kinds naturally reaches Montreal at the lowest rates, Stone is available on the ground. Sand of good quality may be obtained from the Ottawa river or from the St. Lawrence at Three Rivers and Sorel.

Water is taken direct from the river.

Two of the largest and best cement factories in Canada are situated on the harbour front, and cement of the best quality may be had at the lowest market price.

Manufactured articles of almost any description may be obtained in Montreal.

Types of construction.—The types of construction in a newly developed country cannot be expected to be on the lines of the superb and massive docks in Great Britain and Europe. Cheapness and speed in construction have governed all harbour construction up to within the last few years.

The fresh water insures the duration of wooden structures under water, and timber being abundant in Canada almost all wharf construction consists of wood.

Timber cribwork is still the type of quay-wall construction and within the last few years concrete has been adopted instead of wood for the part above water.

Grain elevators of the most modern fireproof types are now the standard, and fireproof harbour sheds have lately been constructed on up-to-date designs.

All works, except the construction of buildings, are carried on departmentally, the harbour commissioners owning and operating a very efficient plant and organization for this work.

The allotment of wharf accommodation is approximately as follows:—

	Per cent.
1. Ocean and passenger business—	
(a) Regular lines.....	25
(b) Occasional.....	10
(c) Tramps.....	10
Total.....	45
2. River passenger and freight business—	
(a) Regular passenger and market service.....	10
(b) Barges and schooners.....	10
Total.....	20
3. Grain business.....	5
4. Lumber business.....	5
5. The sugar trade.....	5
6. Coal.....	10
7. Cement business.....	2½
8. Cattle trade.....	2½
9. General.....	5

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Dry dock accommodation.—In the Lachine canal at Montreal there are two small private dry docks capable of taking in river vessels up to a draft of 11 feet. The large new floating dock being constructed for Canadian Vickers, Limited, is expected to be installed ready for work in midsummer.

PORT FACILITIES.

Grain elevators.—There are three modern grain elevators in the harbour of Montreal, and three of the older type.

The harbour commissioners own and operate two elevators in the centre of the port, capable of taking grain either from inland vessels or from railway cars and delivering by direct conveyors to any of the fourteen of the regular line berths at the new double story harbour sheds.

The storage capacity of these elevators is 3,750,000 bushels. The handling capacity 1,350,000 bushels per day.

In the allotment of the berths at these sheds it is provided that when a berth is not in use other ships may take grain from the conveyors by arrangement with the harbour master.

The Grand Trunk Railway Company's elevator is also a large modern structure capable of receiving marine grain and is especially well equipped for car business. Its storage capacity is 1,000,000 bushels, and its handling capacity 350,000 bushels per day.

Conveyors extend to two special grain berths to which either regular liners or ramps must go to obtain their grain cargoes.

The other elevators are available for storage or export business in a smaller way as required.

A number of floating elevators are owned and operated by harbour commissioners, for the purpose of elevating grain from the inland vessels into the ocean steamers. This was the method generally in vogue until the construction of modern elevators, but now that a larger amount of grain is carried by steamers, the delays incident to waiting for and loading vessels by floating elevators have caused a rapid decrease of the work of these floating elevators.

Cattle shipments.—Cattle are almost exclusively lightered to the ship side from local stock yards on the wharfs convenient to the railways.

Dock sheds.—The harbour commissioners have lately constructed 14 steel double story fireproof transit sheds. These are all allotted to the regular lines. For vessels not having berths at the permanent sheds temporary structures are erected, but require to be removed in the winter to prevent their being damaged from floor and ice.

Lighting on wharfs.—The whole of the wharfs, piers and sheds are lighted by electricity, which enables business to be carried on night and day.

Floating crane.—The commissioners have equipped the port with a modern 75-ton floating crane, which is capable of unloading from the largest steamships and delivering on the wharfs or on cars any heavy packages up to its capacity.

Fire tugs.—There are no fire tugs maintained exclusively for the purpose. The commissioners' tug *St. Peter* is equipped with powerful fire pumps, and is available, when not on other service, for fire fighting. Two of the Sincennes-McNaughton tugs are equipped with fire-fighting appliances, and one of them is usually in port.

Tug service.—Harbour towing is done entirely by the Sincennes-McNaughton line of tugs. These tugs are powerful and handy and the tariff for towing and moving vessels is very moderate, and the tugs are always available day or night.

Railway traffic.—The commissioners operate the railway freight service on the wharves, and cars are handled at all times to and from the principal railways to direct connection with the sheds and the ships.

Pilotage.—The Department of Marine and Fisheries of Canada is the pilotage authority. Ships coming to Montreal take pilots at Father Point for Quebec and

change pilots at Quebec for Montreal. The pilotage service is efficient, and during the last few years, especially, has reached a high standard. The tariff is established by regulation.

Anchorage.—Ships may safely come to anchor opposite Longueuil, immediately below Montreal, but as a rule vessels proceed direct to the wharfs, as all vessels may moor free of port dues, charges for wharfage being made only on freight landed or taken.

Vessels and tonnage.—The number and tonnage of vessels in the port is as follows, according to the last report:—

		Reg. Tonnage.
Transatlantic arrivals.	411	1,659,000
“ departures.	411	1,659,000
Coasting, sea-going, arrivals.	336	575,000
“ “ departures.	336	575,000
Inland, arrivals.	13,636	4,326,000
“ departures.	13,636	4,326,000
Total.	28,766	13,120,000

Fresh water.—Excellent fresh water may be taken direct from the river at several points between Quebec and Montreal. Ships coming to Montreal take fresh water on their way up, and again on their way outwards at points indicated by the pilots, some distance below Montreal.

Provisions.—Provisions of all kinds may be obtained in Montreal at very reasonable prices.

Landing of passengers.—At Montreal the landing of passengers is very satisfactory. The regular liners dock at their own sheds and the Government Custom Service is most efficient. Passengers are landed with their baggage direct into the shed, whence with very little delay they may drive to their destination. The docks being in the centre of the city, the distances to hotels or to railway stations are short.

Ocean freighters.—Nothing could be better for the careful and speedy handling of ocean freights than the high level wharfs and modern sheds. Freights for the city are removed by carts, and goods for distant points are loaded direct to cars and start for their destination with great despatch. Freights for Toronto frequently reach their destination within 24 hours after the docking of the Atlantic steamships.

Stevedoring.—As a rule stevedoring is carried on directly under the agents of the regular lines. Some of the lines prefer to contract with regular stevedores for their whole business, and an excellent stevedore service may be obtained for any class of business coming to the port.

Types of ships.—The pace as regards high class vessels has progressed in an extraordinary manner during the last few years.

The Royal Mail turbines of the well-known Allan Line have been followed by even larger vessels flying the White Star Dominion flag, and by large fast vessels of the Canadian Northern Line. New and improved vessels are put on the service with great regularity, and there are few ports of the world which can boast of a better service than that of the St. Lawrence to Montreal.

Warehouses.—Montreal is the great warehousing centre of Canada. Goods and products of all descriptions are handled directly to and from the city warehouses.

Owing to the splendid railway service to all parts of Canada, the excellent transit sheds and the careful stevedoring in the port, the direct importation and exportation of goods to and from all points of the country is increasing more and more every season. In the harbour sheds packages of goods may be seen addressed to merchants in every large centre of Canada.

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Dues.—The only dues which vessels coming to the port of Montreal have to pay are as follows:—

	Pilotage.	
	Per foot of Draught. Upwards. Downwards.	
Father Point to Quebec..	\$3 87	\$3 40
Quebec to Montreal	2 50	2 50
Total Father Point to Montreal.. . . .	\$6 37	\$5 90

Port Warden's Fees—

General merchandise..	On outward cargo only. 1 cent to 2 cents per ton.
Grain, ores and minerals.. . . .	Free.

Hospital dues—

On register tonnage (3 times per year).. 2 cents per ton reg.

There are no light dues and no port dues on vessels.

The charges in connection with the harbour business are as follows:—

1. Wharfage on all goods landed and shipped in the harbour—

	Per ton.
Grain..	3 cents.
Coal, flour, meats, &c..	6 “
Apples, hay, cattle, steel, rails, &c..	12 “
Sugar, &c..	16 “
General merchandise..	20 “

2. Grain elevator charges—

Elevating into elevator and weighing, per bushel.. . . .	$\frac{3}{10}$ cents.
Storage for 20 days and delivery to vessel, per bushel.. . .	$\frac{3}{10}$ “

3. Railway charges—

Shunting cars from railway to any part of wharf, per car..	\$2 50
Transfer between railways..	5 00

4. Shed rentals—

Double story sheds, average per shed, per annum.. . . \$7,200,00

Capital expenditure.—The harbour, as at present, including wharfs, dredging plant, grain elevator and dock sheds, represents an expenditure of about seventeen million dollars. On the bonds for this amount the harbour commissioners pay interest at an average rate of three and one-third per cent.

The improvement and facilities provided for this expenditure have been economically made, and the actual value is greatly in excess of the cost. The value of the improved land areas at current prices is, in addition, estimated to amount to about eleven million dollars.

THE FUTURE.

Future problems.—The harbour improvements upon which the harbour commissioners were engaged for the past few years are now completed. Every berth in the new constructions was taken up before completed, and already there are applications for accommodation which cannot be granted.

It is well known that it takes several years of work before harbour facilities can become available, and the problems of the future have had seriously to be faced.

Governing factors up to the present.—It is only necessary to compare the existing port accommodation at Montreal, and its cost, with that of other ports, to be convinced that the results so far accomplished have been most economically obtained.

A port which in seven months takes care of an ocean tonnage, inward and outward, of 4,000,000 tons, as well as a very large inland tonnage, all at a capital cost of not more than seventeen million dollars, would be remarkable in other countries.

Although the construction of some features, such as the elevator and new dock sheds, is of a substantial and permanent character, it could not be expected that the wharfs, embankments or the general character of the harbour would be on the finished symmetrical and comprehensive scale of similar works in other countries. Up to the present, cheapness of construction, and accommodation for the present with completion in a hurry, have been the governing factors in design and construction.

Factors of future designs.—The harbour commissioners have now given orders that for the future all works shall be designed having regard to permanence, symmetry and with a view to the future on a very much enlarged scale. Inter-communication between all parts of the harbour, even though not required immediately, is to be kept in view and necessary space and connections provided for.

Plans for the future.—Before undertaking the design of a scheme of extensions, the commissioners have made a thorough study of the following features:—

1. Types of modern ports and features of their success.
2. The trade conditions of Canada.
3. The position of Montreal as regards future Canadian transportation.
4. What is being done or proposed in connection with the rail and water routes between eastern and western Canada.
5. The accommodation required to meet the estimated business of the future, and the special facilities for its different features.

A classification and study of the present harbour facilities show that, taking into consideration the different units of cost, the modern first-class accommodation pays its way, while outlying works not equally equipped are not so successful, even though completed at less cost.

The harbour commissioners have, therefore, given their engineers a task which, though not easy, is considered clearly capable of solution, the principles involved being as follows:—

1. All extensions to be first class as regard permanence, equipment, protection, safety and convenience of access.
2. To provide for the traffic already in sight, which means that double the present accommodation will be needed at the end of twelve years.
3. To provide wharfs and facilities, on the required scale for the very much larger ships which will come with the completion of the 35-foot channel from the sea, already commenced by the government.
4. To improve the valuable railway situation in the harbour, to make available connections from all points and to take advantage of the non-productive harbour areas, almost in the centre of the business section.
5. To take advantage of the complete ownership of the water-front and provide a terminal belt-line connecting all points, and so increase the value of manufacturing sites and generally increase harbour business and revenue.

The care which the harbour commissioners are taking in connection with the study of the necessities and in the preparation of the designs, may be briefly summed up in their instructions, requiring that the scheme of extensions shall be 'necessary, feasible and financially justifiable.'

The scheme, worked out on the lines as above, and as far as unanimously approved after careful consideration by a Consultative Board of Engineers, was adopted by the commissioners in 1910.

The scheme:—

1. 'Will double the capacity of the port.'
2. 'Will lessen St. Mary's current so that water portorage from one end of the harbour to the other may be possible, thus making the river frontage in the east end of the city as valuable as the centre now is, and reducing the long cartage charges over the whole area.'

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3. 'Will give an all-year-round railway service from Point St. Charles to Bout de l'Île, open on equal terms to every railway doing business in Montreal.'

4. Will create manufacturing and warehousing sites possessing:—

(a) 'Direct rail connection over all lines with every part of the continent.'

(b) 'Deep water wharfage available to all ocean lines coming to port.'

(c) 'Water access by way of the canal system to Western Canada and the United States.'

5. 'Will create low-priced power for the movement of harbour equipment, grain elevators, &c.'

6. 'Will reduce the handling charges on every ton of freight coming to the port.'

ANNUAL REPORT, 1911, ENGINEERING DEPARTMENT.

The Engineering Department of the Harbour Commissioners of Montreal is organized so as to have charge of the varied and important branches, as follows:—

Harbour extensions.....	Part I.
Maintenance.....	" II.
Operation.....	" III.

The staff organization requires a responsible officer, always ready when required or in an emergency, to take charge of the many questions in connection with the general maintenance of the harbour, its channels, navigation and the varying physical conditions, also the wharfs, sheds, railways, roads, lighting, terminal and freight handling facilities, reports, information and records. The operation of grain elevators, floating elevators and cranes; the keeping of the wharfs in order and traffic going; the information, advice and consultation as to the best ways and means of carrying on St. Lawrence traffic are also matters of every day work. Besides this, as is sometimes overlooked, there is the actual planning and direction of the construction work which, in Montreal harbour, is done almost altogether departmentally and not by contract.

The physical conditions of the mighty St. Lawrence and the problems in connection with its care are responsibilities not easily passed over. Mr. Kennedy, for many years the chief engineer of the harbour and still its veteran honoured authority, once remarked that it was easy to coax the St. Lawrence but not so safe to try to force it. The harbour extensions must necessarily upset nature to some extent, and the difficulties to be encountered constructing works in the mighty river to withstand currents, ice, changes in temperature of some one hundred and fifty degrees, as well as floods are such as to require in the staff engineers having above all things fearlessness of responsibility.

The construction work is almost universally carried on departmentally. The steady growth of the harbour and the constant yearly effort to keep pace with the commerce, has resulted in the commissioners having a splendid plant for the peculiar constructions required. Dredging plant, tugs, derricks and a shop for repairs, are all kept up-to-date and the organization for construction is capable of dredging and placing in the works some two or three million cubic yards of excavated material, of building half a mile of cribwork and concrete quay walls of a height from the foundations to the cope of 60 feet, of building fifty thousand cubic yards of concrete, constructing railways, walls, sheds, culverts and, in fact almost every phase of port construction.

Weekly, monthly and annual reports are furnished to the commissioners, giving full explanation of all details and of costs, quantities and comparative figures.

The staff organized to design, supervise and carry on the works of such large magnitude and to account, record and take care of the details of expenditure is one of the success of which is its best recommendation.

Mr. A. D. Swan, resident engineer, had charge, under the chief engineer, of the direction of the construction work on the ground, ably assisted by a corps of skilled assistant engineers.

Capt. George Yale, mechanical superintendent, with his assistant, Mr. Wm. Robitaille, had charge of the extensive dredging plant, shipyard and shops.

The commissioners' sawmill, under the supervision of Mr. W. R. Lunan, timber inspector, worked over hours all summer in efforts to supply the large demand for timber.

Mr. Ernest Salter, chief electrician, in connection with the harbour elevators, skillfully looked after and kept in order the large and increasing electrical equipment.

Mr. P. McMullin, general foreman, ably assisted by skilled foreman in every branch, carried on the work as vigorously and efficiently as any contractor's organization in the country.

Mr. J. P. Garnon, superintendent of wharf works, looked after the many details of maintenance and repairs.

The accounting for this undertaking, all carried out departmentally, was ably supervised by Mr. Geo. Smart, secretary and accountant for the engineering branch.

Throughout the whole of the construction work, Mr. Vaughan, superintendent of terminals, gave valuable assistance in connection with the important matters connected with railway construction and the handling of material, all of which had to be carried out without interfering with a heavy season's railway traffic.

The operation of the commissioners' elevator was superintended by Mr. Jere Nehin, and the floating elevators supervised by Jos. Huneault. The engineers, office staff, assistants, superintendents, foremen, timekeepers, together with the large number of skilled workers required, and the officers and men of the dredging fleet, all entered into the work with enthusiasm.

Every effort was made throughout the whole of the works of construction and operations, by order of the commissioners, to spare no expense or trouble for the safety and care of the public and to interrupt the traffic to the least possible extent.

Frequently jobs had to be delayed or put off, much to the disadvantage of progress in order to convenience traffic conditions. This would not have been possible under contract conditions, and was to the advantage of the public.

The shipping interests and the public generally, were very patient under construction conditions and this contributed very largely to the success of the season's work.

PART I.—HARBOUR EXTENSIONS.

Elevator No. 2.

Montreal harbour being the furthest inland ocean port on the northern continent and also the terminus of the inland Canadian canal and railway routes, is an important factor in the grain-carrying trade of the northern part of the continent.

A few years ago the bulk of the western grain came to Montreal in barges. These vessels, without machinery and with small crews, could afford to hold grain in storage until the ocean ship was ready for it, and the grain was then transferred from the barges to the ships for floating elevators.

With the enlargement of the canals, much of the grain now comes to Montreal in steamers capable of carrying about 2,500 tons on the present 14-foot draft of the Welland and St. Lawrence canals. These vessels cannot afford to wait, but must unload their cargo at once, otherwise they will not choose this port.

Grain coming from Georgian bay ports by rail must also be unloaded quickly, as even now, during the grain rush, there is a constant railway car shortage.

In the last few years, therefore, the storage and handling of grain has become a new problem in harbour economy. In order to solve it, the harbour commissioners in 1903 erected a modern storage elevator, having a capacity of 1,000,000 bushels. The

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Grand Trunk railway leased a site from the harbour commissioners and also erected an elevator, in 1904, having a capacity of 1,000,000 bushels. Other elevators, having a capacity of 2,100,000 bushels, have been principally occupied with local business.

In 1910, the congestion at the harbour commissioners' elevator became so great that for weeks steamers were delayed for days at a time waiting for room in the elevator.

Additional storage capacity being urgently required, the construction of elevator No. 2 was commenced in 1910. The site chosen was on the bulkhead wharf, opposite Jacques Cartier Square, between Jacques Cartier and Victoria piers. Although planned in 1909 to have a capacity of 1,000,000 bushels, the designs were made in 1910, by order of the commissioners, for a capacity of 1,750,000 bushels, and the elevator was commenced. The grain congestion in 1911 being even more acute than in 1910, the commissioners decided, in July, 1911, to enlarge the storage capacity of the elevator under construction to the total of 2,600,000 bushels.

The unique feature with regard to the handling of grain in Montreal harbour is the placing of the elevators in such positions that by a system of conveyors the grain can be carried direct to the ships at their different berths and delivered without interfering with their ordinary loading and unloading.

This system proved so satisfactory when completed for Elevator No. 1 that Elevator No. 2 was designed to connect up its conveyor system so that either elevator would be able to deliver grain to all the different berths in the centre of the harbour.

The policy adopted in Canada for the storage and handling of grain has received special endorsement in the report of Sir Thomas Price, commissioner, Railways and Harbours, Union of South Africa, who visited the continent of Europe, United States and Canada and finally reported to the Minister of Railways and Harbours on April 14, 1911, on the storage and handling of grain.

Sir Thomas Price declared that his inquiries and observations constrained him to come to the same conclusion as Canadians with regard to the methods of handling and of transporting grain.

Description of Elevator No. 2.—The new Elevator No. 2 is being constructed of reinforced concrete throughout. It is a structure 456 feet long by 100 feet wide, the receiving elevator being 314 feet long and the extension 142 feet.

The storage capacity of the working elevator is 1,772,000 bushels and of the storage addition 848,000, making a total of 2,620,000 bushels.

The grain handling capacity of this elevator will be very large. Four railroad tracks extend through the entire length of the building and there are 12 receiving lofter legs set in double hoppers, each having an elevating capacity of 12,000 bushels per hour. There are 24 unloading places at which cars may be set. The track hoppers are of sufficient size so that when the leg is busy elevating grain received from a car on one side of it, unloading the car on the opposite side may be proceeding; the valve arrangement being designed so that grain may be fed to the leg from either hopper as desired. Twenty-four pairs of grain power shovels are installed so that if desired 24 cars can be unloaded simultaneously. The receiving capacity from cars will be 250 cars in ten hours and with an extra force of men this can be largely increased when desired by working at night.

On a special jetty built in the slip opposite the elevator, a double marine tower for unloading vessels is being erected. This is a steel structure with reinforced concrete floors and roofs. It is designed for unloading the inland vessels now reaching Montreal, or which may be expected to reach it when the Georgian bay canal is completed. Two marine legs each with a capacity of 20,000 bushels per hour are provided, one on each side of the tower, so that two vessels may be unloaded at the same time. Grain from these legs is weighed on automatic scales and conveyed by belt conveyors, running through a steel gallery, to the main elevator. At the elevator it is carried by lofter legs to the cupola and distributed to the bins.

3 GEORGE V., A. 1913

The present extensive conveyor system for shipping to vessels from Elevator No. 1 is being connected with Elevator No. 2, and it will be continued to the new Victoria pier. Grain from either elevator will, therefore, be conveyed to any of 19 steamships at regular berths. The total length of conveyor galleries will be about $2\frac{1}{2}$ miles, using some $10\frac{1}{2}$ miles of rubber belting.

Construction work.

The construction of the marine tower jetty, the new quay wall in front of the elevator, the excavation for the site and the railway tracks as Part I were undertaken directly by the harbour commissioners' Engineering Department.

The elevator designs and construction Part II were given to the John S. Metcalf Company, Ltd., as designing and constructing engineers for the commissioners.

Part I.

The jetty is being constructed of cribwork foundations and concrete superstructure.

Vigorous work was commenced and carried on throughout the season of 1911, and resulted in the completion of the cribs for the 400-foot marine tower jetty. Before the close of the season one-half of the concrete quay walls of the jetty had been finished.

The foundations were prepared for the marine tower, which is being constructed during the winter, and early in the spring it is the intention to complete the balance of the wall so that the conveyors may be connected up between the marine tower and the elevator.

The concrete superstructure of the shore wharf had also been completed for a length of 400 feet of the total of 600 feet. The whole of this quay wall could have been completed, as proposed, if the site could have been cleared of construction plant.

PART II.—REPORT OF THE ST. JOHN S. METCALF CO., .TD.

February 26, 1912.

F. W. COWIE, Esq.,

Chief Engineer, Harbour Commissioners of Montreal.

DEAR SIR,—As requested, we are enclosing you herewith our report covering the work under our supervision during the past year.

Yours very truly,

(Signed) H. ROLPH,
Secretary.

PROGRESS REPORT OF WORK UNDER SUPERVISION OF J. S. METCALF CO., HARBOUR ELEVATOR 2.

On January 1, 1911, the foundations for harbour commissioners' elevator No. 2 had been completed. These foundations consisted of 7,781 wooden piles driven to a penetration ranging up to 51 feet, cut off at elevation 97, and concrete foundations to elevation 119.75; total amount of concrete, 9,786 cubic yards.

During the winter of 1910-11, false work for carrying bin bottoms, girders and sliding forms was built.

During March and the first part of April, 1911, reinforcing steel was placed for columns, bin bottoms and girders; the first concrete being placed on April 12. The columns were filled in one week, approximately 2,000 cubic yards. The bin girders followed consisting of 3,300 cubic yards and early in May sliding forms for bin walls

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were assembled for the south half of the building. The first concrete for bin walls, south half, was poured May 18, and the top of the bins was reached on June 13, consisting of 5,850 cubic yards. The north half was built in fourteen days; started June 15, and the top of the bins reached on June 29; consisting of 6,752 cubic yards. Therefore the bin walls, amounting to 12,602 cubic yards of concrete, were erected in 42 days.

During July, August and September the sliding forms were taken down and false-work for the distributing and spouting floors, columns, girders, &c., was erected; concrete for these floors was put in early in October. During these three months the curtain walls of first floor were built, drier, boiler and transformer houses were also erected, and the structural steel side shipping gallery was assembled.

During October and the early part of November, forming for columns and girders in cupola was proceeded with, and by November 14 the concrete was in place up to the scale floor, except the walls.

During the balance of November and December, erection of forming continued in cupola up to the top floor and by the end of the year concrete was in up to the weighing floor level.

During the construction of the cupola, in the months of November and December, a considerable part of the equipment of the first floor transformer, boiler and drier houses was erected.

By the end of February, 1912, the concrete structure up to the top floor, with the exception of the walls, was built, and the forming for the top floor columns, roof, &c., was ready.

The electrical installation, power, light and signals was started in January and by the end of February was 50 per cent in.

By the end of February about one-third of the machinery was installed.

The marine tower foundations were put in during December, 1911; and the contract was let for the erection of the steel structures to be completed by April 1, 1912.

Contracts have been let for erection of steelwork for the steel structures connecting elevator with Tower 'L' and with the marine tower.

Unfortunately, during the summer of 1911 the work was seriously delayed by labour troubles.

In September, 1911, the excavation for south extension to elevator was made. In October the contract was let for the driving of concrete piles, but the contractor was unable to drive according to specifications and asked to be released from his contract. This the commission permitted and another contract was entered into with another firm, who by the end of February, 1912, had driven approximately 75 per cent of the piles required.

Every effort is being put forward to have the elevator ready to receive grain from cars and ship to steamers in May, 1912.

Item 3.—The improvement and extension of the harbour railway tracks.

The harbour front of Montreal which had been developed in the past with a view to usefulness only during the season of open navigation, is, owing to its situation, too valuable to be closed during the five months of winter season.

For the carrying out of the instructions of the commissioners, to make the port of Montreal the best possible terminal connection between the Transcontinental railway systems of Canada and the North Atlantic steamships, the shore area of the harbour has been designed as a convenient railway terminal. The railway tracks being operated directly by the harbour commissioners, such supervision can be made of traffic as to permit of extensive shunting and to give convenient access for railway freight to all points on the wharfs at all hours day or night.

The Grand Trunk and the Intercolonial railways connect with the harbour front at its extreme upper or westerly end. The Canadian Pacific and Canadian Northern railways reach the harbour towards the lower or eastern end.

The large harbour transit sheds, otherwise idle during the winter, are very well adapted for the handling and delivering of steamship freight by rail from winter ports.

The harbour extension plan of 1909 called, therefore, for such improvements as would make this valuable water front available for use during the winter. So far advanced is the work that both the Canadian Pacific Railway Company and the Grand Trunk are now handling a large share of their winter steamship and local freight from the harbour sheds.

The success of the traffic already justifies the expenditure and the harbour front is now a busy point during the winter for the transfer of railway cars between railways and for the delivery and receipt of city local freight.

From the Victoria pier eastward there are now no dangerous level crossings. Along this distance the tracks have been raised from the low water level, always flooded during the winter to high level, access being given between the wharfs and the city by eleven subways at the principal points. With the increase of the shunting and railway traffic these subways are of inestimable advantage both with regard to the safety of life and property and also for the convenience of traffic.

In view of the success of these high level tracks and the increase of traffic, large additions have already been required, and instead of two single lines between Victoria pier and Molsons creek, there are now additional lines with three ramps leading to the low level, and instead of eight subways, as originally designed, eleven have been constructed.

In 1911, in addition to improvements to the tracks hurriedly constructed in 1910, the railway was extended from Molson's creek to the Racine pier, a distance of .606 mile. The details of construction are given in the report of Mr. A. D. Swan, resident engineer.

Item 4.—New Victoria Pier and Market Basin

In the scheme of harbour extension of 1909, every consideration was given not only to the enlargement of steamship accommodation but also to give additional and convenient accommodation to the important fleet of river and ferry steamers.

It was recognized that the river steamers which do a tremendous passenger and market traffic should have a location in the harbour convenient to the centre of the city and to the Bonsecours market.

The plan accompanying this report will give a general idea of the situation and importance of this item of harbour extensions, as approved by the Board of Consultative Engineers of 1909, and as now under construction.

The construction of this large pier in the very centre of the congested harbour district is one of the most serious matters occupying the attention of the engineering department. Every effort is made to advance the work without undue cost, and also not to interrupt the immense traffic which is carried on during the seven months of the navigation season.

The pier has been designed so that the upper and outer portions are to be devoted to steamship traffic and with a view to steamer trains for the immediate transfer of passengers between the steamships and railways. Permanence of construction and the ample dimensions of the berths having a depth of 35 feet at low water, are the features of design for the steamship portion of the work.

The market basin is designed for the safety and convenience of the large passenger and vehicle traffic between the city and the river vessels. Three large and easy ramps lead from the city direct to the low level wharfs, giving roadways and sidewalks which pass underneath and free from railway traffic. The new wharfs being built for river craft are built for convenience of the steamer low gangways, at low water level, and they are built of the same general character for permanence as those of the high level. Slips, numerous and wide, have been designed to meet the requirements of the local steamers.

In the construction of these quay walls several new features have been employed. The cribwork substructure is built with double face timbers and very great additional strength.

NOTE The plan accompanies the separate report published by the commissioners.

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The concrete wall of the superstructure is also built of additional strength with new design for the mooring of vessels.

For the first time a new arrangement has been designed and successfully carried out in connection with the construction of the lower part of these concrete quay walls. Mass concrete deposited in water has always proved difficult of perfect construction, and when the face is imperfect in the vicinity of the low water, where the November frosts attack it, the wall, in a few years, becomes eaten away and undermined. Footing blocks of concrete moulded in air have been used for some years. They are quite successful as regards giving a permanent concrete face in the vicinity of low water which is not attacked by frost. The blocks, however, do not fit themselves to the top of the wooden Canadian cribs in such a way as to give the degree of stability or such uniform bearing surface as considered necessary where the heavy concrete retaining wall is founded on timber substructure.

Reinforced concrete shells of an absolutely new design were tried in 1911, and proved very successful. These shells are 6 inches thick, fully reinforced with steel rods and the surface glazed and hardened, are made to fit the top of the cribwork. They are in sections about 20 feet long and the full width of the bottom of the concrete wall.

A derrick lifts them from a scow and places them accurately in position and when the interior is filled with concrete from the mixer it forms 4 feet of solid wall above the top timbers and gives a perfectly stable foundation for the wall with even bearing surface so as not to unduly fatigue any parts of the timber.

When the top of the shell is reached the wall is above water and the wall is built as a direct wall in air with a perfect face.

It has been found that vertical quay walls are much more convenient for present day ships than walls having an angle, and the quay walls are now designed vertical. This requires careful design for stability but when completed it obviates much of the danger of either the ship or the crib being damaged under water as is the case in walls having a batter.

Shed No. 16.—The quay wall for the first berth having been completed, the first shed on Victoria Pier No. 16, was commenced on September 16. This shed is 484 feet long and 100 feet wide.

The concrete pier foundations rests on reinforced concrete piles, of the simplex moulded system. A steel shell was driven to a penetration of 40 ft. and the reinforced moulded pile was lowered on to the iron cap driven by the core and left at the bottom. The interior was filled with grout and kept full as the shell was withdrawn. This gave a moulded reinforced concrete pile having a penetration of 38 ft. and well grouted all around for additional friction bearing power. The average length of these piles for shed 16 was 35 ft.

One of the concrete piles after being driven was selected at random and loaded to the following test, giving eminently satisfactory results.

TEST OF SIMPLEX PILING AND CONSTRUCTION CO.'S PILE, HARBOUR SHED NO. 16.

Total length of pile, 31 ft. 0 ins.

Length of pile in ground, 28 ft. 0 ins.

Two blows of a 3,000 lb. hammer with a drop of 15 ft. gave final penetration of 1 inch.

Up to and at 50 tons no change was observed, and at 60 tons there was an apparent settlement of $\frac{1}{8}$ inch.

The foundations were completed and the piers and wall built ready for the steel at the close of the year.

The shed is of the structural steel skeleton type with reinforced concrete floors and roof, and corrugated iron covering. The columns have been spaced so as to give the maximum area of storage capacity, having bays at 27 feet 9 inches, 42 feet and 27 feet 9 inches. The longitudinal panels on the lower floors are 22 feet long and on the upper floor 44 feet long. Both sides of the shed are fitted with galvanized iron rolling

doors, and on the roadway side rolling doors of the maximum height of the shed will be provided for the handling of very large package freight.

The lower floor is to be fitted up with the necessary offices for wharfinger, marine superintendent and staff, and on the upper floor with first and second class waiting rooms, restaurant and baggage room, having lavatories and all conveniences.

A conveyor gallery is to run the whole length of the shed and will be connected with Elevators Nos. 2 and 1.

Item 16.—Dry Dock Site.

One of the most important items of construction work in connection with the progress of the harbour improvements is the important work of providing a site for a floating dock in the eastern division, below St. Mary's current.

A glance at the chart will show, at the boundary line between the town of Maisonneuve and the parish of Longue Pointe, near the outlet of Molson's creek, a natural bay. This bay, where the water is very shallow and which is of large extent, appears to have been admirably adapted by nature for the purposes of a dry dock or shipyard. There is ample room between the ship channel and the shore. No streets or railways intersect the site. The river is wide and the current very gentle.

The site is connected with the harbour commissioners' independent railway tracks, which themselves connect with all Montreal railways. The important main lines of the street railway service pass close to the site. The new and extensive works of the Montreal Steel Works or Canadian Steel Foundries, Ltd., which will be one of the most up-to-date plants on the continent, are rapidly nearing completion; just across Notre Dame street, the extensive Locomotive Works, Structural Steel Works, National Bridge Company, and the Canada Cement Company, besides a host of other manufacturing industries attracted to this locality are branching out and flourishing in this immediate neighbourhood.

Considering, therefore, labour conditions, access by railways and steamships, and the physical suitability of the site, the construction of the Dry Docks Works is meeting with unanimous approval.

The harbour commissioners are supplying the protected basin, wharfs and deep water, as well as an area of 30 acres of made land for shipyard and subsidiary plant.

Messrs. Vickers, Ltd., the celebrated shipbuilding firm of England, through the newly-organized firm of Canadian Vickers, Ltd., under contract with the government and the harbour commissioners, are to construct and maintain the floating dock and a magnificent shipyard and repair plant.

The works undertaken by the harbour commissioners entail the dredging of the basin and placing of all the material in the dump to form the reclaimed land area of 30 acres..

Besides the dredging, the outer slope of the embankment, which, in future, will be a continuation of the line of wharfs in that division of the harbour, is to be rip-rapped sufficiently for its protection.

The quay walls on the three inner faces of the protected basin are being built by the harbour commissioners construction organization of standard strengthened crib substructure, founded 32 feet below extreme low water and improved concrete quay walls up to 28 feet above low water.

The plant engaged on this work during the summer consisted of four and frequently five of the largest and most powerful spoon dredges in the world. In addition to this work in connection with the filling and grading of the reclaimed land, three to four floating derricks and three land derricks were at work most of the summer, working day and night.

The total amount of dredging in connection with the dry dock during the season amounted to 1,246,442 cubic yards.

At the end of the season 60 per cent of the full amount of dredging in connection with the dry dock site was completed.

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Of the 30 acres area of reclaimed land, about 4.56 acres was completed to grade and 12.11 acres filled to above water line, but not to full height, making the total area of reclaimed land 16.67 acres.

One line of railway tracks was completed and extended to the outside limit of the shipyard area and the main line parallel to the river shore was constructed for the full length of the site.

One of the main sewers of the town of Maisonneuve, which formerly discharged into what is now the still water protected basin for the dock, was, by judgment of the courts of Canada, obliged to be diverted to a point outside of the dry dock basin into running water.

The town of Maisonneuve awarded the contract for this work to a firm of contractors, and this job has been occupying most of the season and is now at an advanced stage of completion, but not yet connected up.

In connection with the improvements at this division of the harbour, and following the raising of the harbour commissioners' high level railway, the Canadian Northern railway decided to cross Notre Dame street by an overhead bridge. This work was completed and the commissioners' railway specially graded to meet the new level. The first train was carried over this bridge on October 16, 1911, and another step in advance may be recorded for the safety of the public by the abolition of this level crossing at Notre Dame street.

Of the 2,500 feet of Dock quay wall required to be built, the substructure for 800 feet, consisting of 953,600 cubic feet of crib work, was constructed and sunk in place and ballasted before the close of the season. In addition to this, another 100 ft. crib was completed and ready to be sunk when the work had to be stopped on December 4, owing to the winter setting in.

The concrete quay wall was commenced and before the close of the season 780 feet completed up to summer level, in which it will be left to settle during the winter and finished to cope level early next spring.

4,338 cubic yards of concrete was placed in this work, and at the close of the season the basin presented an interesting appearance, having the greater part of the southern dock wall in an advanced stage of completion, including anchorage blocks and the special mooring attachments for the floating dock.

The protected site is now in a sufficiently advanced state for the floating dock, for the deep basin and approach channel are so far completed that docking may take place as soon as the arrival of the floating dock, which is now under construction and which is expected at Montreal in midsummer of 1912.

The Canadian Vickers, Ltd., have had representatives and engineers on the ground throughout the summer, and tenders have been called for the construction of shops of an extensive character, as well as the steel shipbuilding plant in connection with their launching slip. With an eye to the future, this company are designing all their plant suitable for undertaking all kinds of repairs to all classes of vessels, and their construction launching slip is designed to take in at one time either a full-sized merchant vessel on one cruiser and one destroyer, or one full-sized battleship, every requirement for the repairing or building of ships in Canada.

Item 14.—Dredging generally.

1. *Diversion of guard pier.*—A large dredge and a derrick worked practically the whole season at this work; the dredge excavating the old bank and the derrick depositing the material in the new location.

Owing to the diversion of the end of the guard pier, the lighthouse erected by the government some years ago has to be removed. This work is being attended to by the Marine and Fisheries Department, and the pier for the new location was nearly completed on the shore of St. Helen's island, before the winter set in.

2. *Deepening the south channel.*—Elevator dredge *Premier*, as soon as ready for operation, was laid out at this work and continued for the balance of the season. At

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times, when it could be spared, a large spoon dredge aided in the carrying on of this urgently required channel enlargement.

3. *Widening and deepening the harbour inside the guard pier.*—For many years, as the ships became larger, the widening and deepening of the channels between the berths at the piers and the guard pier has been continued. The material requires to be blasted, but when dredged it makes excellent crib filling material.

CONSTRUCTION PLANT.

The following plant has been acquired by the harbour commissioners in 1911. The cost of this plant is principally covered by an amount of 5 per cent set apart for this purpose in the appropriations for new works.

1. Elevator dredge *Premier* and tug *Beaver*, bought from the Frank Gilbert estate.

2. The powerful twin-screw tug *Sir Hugh Allan*, built for the purpose of towing heavy dredges and breaking ice when necessary.

3. One 40-ft. boom Browning locomotive crane, fitted with a 1-yard drag scraper bucket and a clam shell.

4. A scow has been fitted with blasting equipment.

Besides, the harbour commissioners have now under construction at their own shops the following:—

The new powerful dredge *No. 6* of the same type as dredges *Nos. 2, 4 and 5*, improved in design and strength and fitted with a longer boom. This dredge will be ready to start work at the opening of navigation.

A floating derrick designed on the same lines as the five floating derricks owned by the harbour commissioners, but improved and strengthened.

Two strongly designed flat scows.

Dredge *No. 5*, the machinery of which was constructed at the harbour commissioner's shops in the winter 1910-11, has been in operation the whole season, also the three flat scows built at the same time at the harbour commissioners' shipyard.

Automobile.—The harbour commissioners' automobile was in commission from the opening of navigation to the end of the year.

It proved most useful for prompt inspection by the engineers and visitors of the works, spread over five miles of wharf.

GENERAL IMPROVEMENTS.

Electric Hoist on King Edward Pier.—A new electric hoist of different design but equipped to do work similar to that of the hoist erected in 1910 at shed *No. 11*, was built on the King Edward pier in 1911 to carry teams to and from the overhead bridge connecting the upper floors of sheds *7, 8, 9 and 10*.

This hoist was put in operation at the beginning of September and has proved entirely satisfactory both as to working and number of teams elevated and lowered.

Engine House and Harbour Yard.—In 1910 the harbour commissioners planned to build an engine house for storing their five locomotives alongside the high level railway below the Hochelaga cotton factory. A small amount of work had been done on this construction when the Rafferty property adjoining the site of the proposed building was advertised for sale.

As the harbour yard on Papineau Avenue had become unable to cope with the requirements, the harbour commissioners changed their plans with regard to the new engine house and decided to acquire the Rafferty property upon which to erect a new yard together with an engine house, all in one building.

Plans were prepared and tenders called for the new building and the contract let to Mr. C. E. Deaken who commenced immediate construction.

The building has now progressed to an advanced stage of completion and is promised for delivery in the early part of the summer.

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It is built entirely of concrete and will be equipped with offices, carpenter shop, blacksmith shop, storage rooms, coal pockets, ash pit, stand pipe and a travelling crane for transporting parts of the locomotives under repairs.

It will be connected by sidings to the high level railway.

Sheds on the Tarte Pier.—At the request of the McLean-Kennedy Co., and the Elder-Dempster line, the commissioners decided in the spring of 1911 to build two one-story freight sheds on the Tarte pier. Tenders were called for in the usual way and the contract awarded to Mr. E. G. M. Cape who commenced erection at the beginning of July. The buildings are now progressing in such a way that they will be entirely completed at the beginning of June, 1912.

The walls and floors are built of concrete and the roof covered with gravel. All side doors are of the sliding type, made of steel and the end doors are of the rolling up system, of steel also. The two sheds are separated by a distance of 100 feet. The frames and roofs of these sheds have been so designed that a further story can be added later if required. They have each a floor area of 32,000 sq. feet.

Dominion Coal Wharf, Hochelaga.—Filling behind the concrete quay wall, constructed in 1910 for the Dominion Coal Co., was continued and 2,850 cu. yds. of material deposited during the year. New tracks of a total length of 1,680 ft., connected with the harbour railway were put in for the use of the coal company.

Racine and King Edward Park Wharfs.—In order to accommodate the ferry passenger traffic to the King Edward Park, a wharf made of timber piles was constructed near Racine pier, and another of the same type of construction at the King Edward Park, this latter rendered necessary by the foundering of the old wharf there.

St. Helen's Island Ferry Wharf.—By agreement with the city authorities the commissioners decided in the spring of 1911 to construct for and at the expense of the city, a wharf at St-Helen's Island to accommodate the ferry traffic between the city and that playground.

The wharf is of the standard crib substructure and concrete superstructure, 265 feet long, low level, and was entirely completed during the summer, with the exception of a small amount of back filling. As early as the beginning of August the St. Helen's Island ferry boats commenced using this wharf although barely completed.

PART II.—MAINTENANCE.

Wharf Repairs and Maintenance.—The cleaning and repairs to the roadways and wharfs and maintenance generally, have been kept up as usual.

No extensive repairs were made to the low level wooden wharf; in view of the proposed permanent works only absolutely necessary repairs were done.

The two principal items of this work during the season have been repairs to the concrete wharf at section 25 and at the Bickerdike pier.

Steel Freight Sheds.—The maintenance of the fourteen steel freight sheds has been carefully attended to, the steel work scraped and painted and the concrete floors repaired where damaged by heavy traffic.

The chutes outside and inside the sheds were also kept repaired and in good working order.

Mail boxes.—For the convenience of the travelling public in the harbour, the commissioners, in 1910, applied to the post office authorities for mail boxes to be placed at the entrance of the steel transit sheds.

This was agreed to by the Post Office Department and at the opening of navigation mail boxes had been placed at the following sheds:—

One at shed No. 2.

“ “ “ 4.

“ at sheds Nos. 7 and 8.

“ “ 10 “ 12.

This new convenience has been greatly appreciated from the first day of its installation.

Chutes for Sheds.—At the request of the steamship companies the commissioners erected the following new chutes for the handling of freight from and to the upper floors of the steel sheds:—

At shed No. 6, two double chutes.

“ 11, one “

Railway Maintenance.—The railway tracks on the water front operated by the harbour commissioners, were kept in excellent order during the year.

In the spring the recently built embankment of the high level railway softened somewhat under the action of the water, and shimming up of the tracks had to be resorted to to keep the traffic going until dry conditions prevailed.

No more low level tracks remain to be diverted to high level.

Electric Lighting and Power.—The contract of 1910 between the harbour commissioners and the Montreal Light, Heat and Power Company provides for an unlimited supply of electric power on the harbour. It was drawn in view of the proposed extensions, especially the grain handling equipment, which is exclusively run by electricity and requires a great deal of power.

From Bickerdike pier to Pius IX avenue, the lighting of the harbour was kept up to standard during the year. The maximum number of lamps in operation during the summer was 185. During winter several lamps were kept as usual burning on the high level piers where winter business was being carried on.

Life Saving Equipment.—The life saving equipment of the harbour was closely inspected throughout the season and any life buoys or life poles missing, for one reason or the other, were immediately replaced.

Altogether 130 life poles and buoys were scattered over the water front; during the season six lives were saved by their use at the following places: Sections 23, 28, 30, 33, 40 and 46.

Testing of the Basin and Channel in 1911.—The testing was carried out with the harbour commissioners' testing boat and tug *Alphonse Racine*. The whole space of the channel and wharfs below Montreal was gone over, and overlapping was done on the different runs so that nothing would be missed. The lines were run by shore beacons, cross marks and channel buoys, and the results carefully recorded from indications on the automatic dials of the testing machine.

The results were carefully plotted in the drawing office from the records thus made.

All the testing was reduced to low water of 13 ft. 7 in. depth on the lower lock sill of the Old Lachine canal, the low water record of 1897, the extreme low water level adopted by the Department of Marine and Fisheries.

In the channel and alongside the wharfs, from Tarte pier to Victoria pier, the testing was for a depth of 30 ft. at low water; from Victoria pier to section 12 and above on the south lower half of the Windmill Point basin to 29 ft. depth, and the balance of the Windmill Point to 25 ft. depth.

The sweeping of the channel was commenced on May 6, and was continued at various times during the season of navigation.

The results of the tests between May 6 and June 20 showed that the channel below the Victoria pier was clear to standard depth, with the exception of a small area which was found to be only 29 ft. 6 ins. in depth about 60 feet south of centre opposite sections 23-24, and part of the shoal just at the lower end of the Guard pier, where it was found that a small amount of dredging was required to widen the channel opposite the new Victoria pier to full depth of 30 ft. at low water, and the necessary dredging was done.

On July 26 and 27 the channel and basin from Jacques Cartier pier to section 12 were tested and found clear to 29 ft. at low water. The northern half of the

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Windmill Point basin and the upper southern half from section 8 were also tested and found clear to 25 ft. depth, with the exception of a few small spots showing 3 inches less, and a few small areas from section 7 N up along the wharf, that it would be dangerous to dredge on account of the cribs. None of these spots will cause interruption to navigation.

From November 21 to 25, inclusive, the channel was re-tested from St. Ann's Cotton Mills to Tarte pier and found clear except at some spots close to the old 25-foot wharfs which showed 6 inches to 3 feet less than 30 feet at low water. During the same parts of the channel from the Ste. Ann's Cotton Mills to Victoria pier, and the basin in front of the new wharfs section 24 to 20 were tested to 30 feet and found clear except a strip alongside parts of the new wharfs which had been filled with rock for temporary protection during construction. These spots are all of insignificant proportions and will not interfere with navigation by vessels which use these wharfs.

On December 6 the channel and basins from sec. 19 to 12 were swept and found clear to 29 feet, with the exception of a small spot in the Allan basin which showed 3 to 6 inches less than channel depth and which causes no interruption to vessels. This spot will be dredged off next spring before vessels arrive.

The Windmill Point basin on the north side and the upper half of the south side was re-swept for 25 feet depth at low water and found clear except the insignificant spots, 3 inches less than standard depth, as above mentioned.

The lower south half of the basin was tested for the first time this year on December 7 and found clear to 29 feet at low water except a few small spots close to the wharf which showed 3 inches at the outer edge and 2 feet 9 inches close against the wharf less than standard depth. These spots do not interfere with the berthing of vessels but they will be dredged off next spring if practicable.

No testing has been done this year in the basins between Laurier pier and Sutherland pier, and the records only show the results of former years' testing. These basins are clear throughout for navigation of 27½ feet draught.

Elgin Basin Sewer Dredging.—As customary, just before the taking of the ice, the sewage matter deposited in the Elgin basin by the sewer having its outlet there, was dredged out. There yet remains some of the accumulation which will be cleaned out at the opening of navigation.

PART III.—OPERATION.

Grain Elevator No. 1.—The following table gives the records of the operations of the grain elevator since the house has been in commission:—

Year.	Bushels elevated.
1904.....	565,355
1905.....	4,356,568
1906.....	944,321
1907.....	1,078,289
1908.....	8,661,350
1909.....	11,691,071
1910.....	14,906,569
1911.....	13,849,475

The falling off in the amount of receipts as compared with 1910 cannot be attributed to less business offering, as many grain boats had to be turned away, the house being loaded to almost full capacity with grain due for late delivery.

Other reasons for the decrease in receipts were the low water in the canals and the dock strike in England which delayed many ships bound for Montreal.

One of the features of the year's business is the increase over 1910 of 1,200,000 bushels in the receipts of American grain.

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The maximum quantity of grain in store at one time was 1,007,953 bushels while the normal storage capacity of the house is 1,000,000 bushels.

The following report of Mr. Jere Nehin, superintendent, gives the details of the operations for the year:

F. W. COWIE, Esq.,
Chief Engineer.

DEAR SIR,—I beg to submit for your information and that of the harbour commissioners the following report of grain elevator No. 1 for the season of 1911.

The amount of work done during the season is somewhat less than that of 1910. This is explained by the following causes:—

Shortly after opening of navigation the storage capacity was fully taken up and this condition continued for the greatest part of the season. We could only receive therefore grain into store as room was made by export shipments and consequently had to refuse considerable grain.

Again on account of the strike of dock laborers in England, whereby steamers' scheduled time was disarranged, causing delays, some Montreal steamers only coming as far as Quebec.

The low water also that prevailed in the river and canals this season resulted in many boats from the upper lakes being tied up waiting for the water to rise.

The lateness of the harvest in the west also contributed, being about a month behind.

The above causes resulted in a shortage of fully 800,000 bushels in our receipts compared with 1910. Taking these reasons into consideration I think we did well on the whole, and consider we had a successful season.

I beg to call attention that on August 9 we shipped to Buffalo 16,937 bushels Canadian barley, which was first shipped from Duluth to Montreal and remained in store for two years and eight months. I also beg to say that we received from Buffalo on November 21, 39,876 bushels wheat. This was Canadian wheat shipped from Fort William; it was stored in the Electric elevator in Buffalo and transhipped to Montreal for export.

During the season of 1911, 169 steamers and 205 barges were unloaded, making a total of 374 vessels, against 387 in 1910, a decrease of 13 vessels.

I would like to draw attention to the manner in which the staff has to come out at night to deliver grain to steamers. Sometimes they have to come at 7 p.m. for ships said to be ready to receive grain, but often they are not ready until 8.00, 8.30 and 9.00 p.m.

We had an instance last season when we were asked to come at 7 p.m. on Sunday. Men were here in time, as ordered, but were told the ship would not be ready before morning. She was not ready then nor that day. We were asked to come again on Monday night to deliver same lot of grain. Again the men were sent home, the ship not being ready and did not get ready until 7 p.m. Tuesday evening 48 hours later than time they first said they would be ready.

We are always prepared to deliver grain at night, but it seems to me that if a ship is not ready to receive grain at 7 p.m. she should be put off until next morning at 7 o'clock, except on special occasions.

The present winter repairs are such as are required after an active season, consisting of overhauling of the legs and machinery. As you are aware, we are now repairing the pits of our lofter legs. Outside of these repairs all the work can be done by our regular winter staff, except blocks and tackle for the pneumatic shovels which will have to be sent to the shop for repairs.

In the conveyor system there will be three belts to repair which will require 125 feet new conveyor belting. One clutch will have to go to the shop to be repaired and 18 goose neck spouts are now under repair by the sheds staff, and quite a lot of other repairs which can be done by our staff.

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We may require before next season expires a new marine leg belt and buckets.
 No serious delays or mishaps have occurred during the season to interfere with
 the working of the elevator.
 You will find statement hereto attached of the season's work.
 The whole respectfully submitted.

Yours obediently,

(Signed) JERE NEHIN,
Superintendent.

STATEMENT OF GRAIN RECEIVED AND DELIVERED AT HARBOUR COMMISSIONERS' ELEVATOR NO. 1
 DURING SEASON OF 1911.

Grain received and in store—

Kind.	No. of bushels.	Total.
In store end of season, 1910		712,855
Received—		
Wheat.	8,119,336	
Corn.	2,500,392	
Oats.	3,158,921	
Barley.	49,642	
Flaxseed.	16,290	
Peas.	4,894	
		<hr/> 13,849,475
Total.		<hr/> 14,562,330

Grain delivered and in store—

Delivered—		
Kind.	No. of bushels.	Total.
Wheat.	8,266,984	
Corn.	2,500,592	
Oats.	3,424,567	
Barley.	55,872	
Flaxseed.	16,290	
Peas.	4,894	
		<hr/> 14,269,199
In store end of season, 1911		293,131
		<hr/> 14,562,330

Of the above there was—

Delivered by conveyor.	13,338,813
“ cars	475,386
“ teams	222,270
“ in bags.	232,730
	<hr/> 14,269,199

Floating Grain Elevators.

The floating grain elevators purchased by the commissioners in 1910 were, at the close of that season turned over to the machine shop and shipyard for repairs and general overhauling.

In 1911 the commissioners operated six of these floating elevators transferring grain from lake vessels directly to steamships.

FLOATING CRANE NO. 1.

The floating crane was in commission during the whole season of navigation, opening same at the end of April with three days' work on a dredge at the Marine and Fisheries shipyard at Sorel.

In August the crane reached the highest record since the beginning of its operation, by making 112 lifts of an average weight of $11\frac{1}{2}$ tons.

The need of this equipment in the Port of Montreal and the new trade in heavy machinery, principally resulting from having it, can be judged from the fact that in 1911 the number of lifts and their total weight has quadrupled over the business of 1910.

In November and December the Marine and Fisheries Department again used the crane at Sorel to lift dredge spuds weighing 60 tons each. Besides it has proved most useful on the harbour work for lifting locomotive cranes, concrete mixers and in making heavy lifts for the dredging fleet.

During the season the total number of lifts by the crane has been 633 and the total weight 5,310 tons.

Hoist No. 1, Sheds Nos. 11 and 12.—This hoist was in commission from April 20 to December 9. On several occasions it was run overtime at night and on Sundays during rush periods.

The following table gives the record of the hoist during the season:—

Number of days in operation, 205.

Total number of teams carried, 11,997.

Cost of power, operation, repairs, &c., \$1,191.09.

Average cost per team, 10 cents.

Hoist No. 2, King Edward Pier.—This hoist was put in commission on September 7, after many tests had proved it to be equal to specification, and it continued working until December 12.

The following table gives the record of its operation during that time:—

Number of days in operation, 84.

Total number of teams carried, 4,705.

Cost of power, operation, repairs, &c., \$625.65.

Average cost per team, $13\frac{1}{3}$ cents.

GENERAL NOTES.

Elgin Basin Sewer Commission.—All the old plans of Montreal, or Ville Marie, show St. Peter's river, or Petite Rivière St. Pierre, which flowed into the St. Lawrence opposite the market gate, in the exact position of the present Elgin Basin sewer.

In 1832 the Royal Engineers constructed a deep stone tunnel for the Little river from McGill street to the point where it discharged into the river, near the present Custom House. As the city built up, sewers were laid into the tunnel. The sewage area now drained by the Elgin Basin system is 375 acres.

The basin is now enclosed between two piers, each extending out about 1,000 feet and situated in a protected harbour. The harbour has been designed with inlets sufficient to change the water every 14 hours, but not with sufficient current to carry away sewage matter which is left to precipitate near the outlet and to form gases which bubble up, all of which has caused the protests of the sanitary authorities.

The deposit of sewage in the basin of the harbour is not only a pollution of the water and a danger to health, but it is an impediment to navigation. It has been reported that frequently the ships berthed near the outlet are put to the serious trouble of having the intakes for their condensers and fire pumps blocked.

At a conference held on July 13, 1910, between the city controllers and the harbour commissioners, it was decided that means should be adopted to abate the nuisance caused by the deposit of sewage in the Elgin basin.

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A commission was appointed, consisting of Mr. Stuart Howard, C.E., and Mr. W. Cowie, C.E., who, as instructed, nominated Mr. Henry Holgate as their third engineer.

On July 19 an appropriation of \$2,500 for carrying on the investigation was approved by the city, and the harbour commissioners passed a resolution approving of a similar amount to be expended on their part, the total amount of the appropriation in no case to be exceeded.

The expenditure on the part of the city was voted by the city council on November 1, 1910, and the agreement between the two boards of commissioners was signed on January 9, 1911.

On January 12 a meeting of the Elgin Basin sewer commission was held and discussed the various schemes to be considered, one of them being purification of the sewage and the other six alternative routes where the sewer could be diverted to find an outlet further below in the swift current. The latter schemes all involve the erection of a pumping plant at Place Royale.

After a series of conferences had been held and survey work accomplished, on March 31 the commission presented to the city authorities and the harbour commissioners a report which recommended the diversion of the sewage, at present running into the Elgin basin, to what was named route No. 5. The scheme is as follows:—

A pumping station at Place Royale raising the water into a new sewer which will follow St. Sulphice street and Place d'Armes Hill to the Craig street sewer.

The sewer to be for the most part built in a tunnel, the construction of which would not seriously interfere with traffic. The distance from the pumping station to the end of the work is shorter than any other proposed route.

The estimated cost of this work is \$120,000 for brick sewer, or \$150,000 for cast iron tile lined sewer.

Wharf Accommodation.—The extent of the wharfs at the end of the season is as follows:—

For 30 feet draught and over.	21,182 lin. feet, or 4.011 miles.		
25 to 27½ feet.	14,890	"	2.821 "
Total deep draught.	36,072	"	6.832 "
For 20 feet and under.	3,137	"	0.059 "
Total wharfage at the end of 1911	39,209	"	7.426 "

Extent of Harbour Railway Tracks.—The extent of the harbour commissioners' railway tracks at the end of 1911 is as follows:—

1. Southeast of Lachine canal, connecting only with the Grand Trunk railway system, and not operated by the harbour commissioners' traffic department:—

	Feet.	Miles
Mackay pier.	10,400	1.970
Bickerdike pier.	11,885	2.251
Windmill Point wharf.	9,142	1.731
Total, southeast of Lachine canal.	31,427	5.952

2. Harbour front from foot of Lachine canal to Molson's creek, connecting with Grand Trunk railway, Canadian Pacific railway and Canadian Northern railway. Operated by the harbour commissioners' traffic department:—

	Feet.	Miles.
High level embankment wharfs and piers, sec. 12 to 19.	38,635	7.32
Sections 19 to 55.	39,500	7.48

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Low level wharfs, sec. 19 to 55..	35,800	6.78
Total operated by commissioners..	113,935	21.58
Operated by railway companies:—		
Coal siding, sec. 36-37, Canadian Pacific Ry. Co. (joint use with traffic department)..	1,700	0.322
Siding, sec. 47 to 55, Canadian Northern railway.	9,900	0.739
Total operated by railway companies, eastern section..	5,600	1.061

3. Industrial railway connections:—

	Feet.	Miles.
Southern Counties railway, Windmill Point.. . .	475	0.090
Locomotive wharf..	1,350	0.255
Longue Point Village wharf..	160	0.030
	1,985	0.375

Grand total tracks on harbour in use in 1911.. . .	152,947	28.968
Track ready for operation in 1912:—		
Molson's creek to Racine pier, sec. 55 to 62.. .	3,250	.606

Depth of Water.—The depth of water in the ship channel was abnormally low during the season, due to the falling off in the level of the Great Lakes.

The following table gives a comparison of the monthly averages of the depth of water on the old No. 1 Lachine canal lock sill, with the corresponding depth in the harbour ship channel:—

Month.	DEPTH ON OLD LOCK SILL LACHINE CANAL.		DEPTH IN HAR- BOUR CHANNEL
	Average. 1901 to 1910.	Average. 1911.	Average. 1911.
May..	20 ft. 8 in.	19 ft. 4 in.	34 ft. 9 in.
June..	19 " 5 "	17 " 6 "	32 " 11 "
July..	17 " 4 "	15 " 1 "	30 " 6 "
August..	16 " 2 "	14 " 0 "	29 " 5 "
September..	15 " 6 "	13 " 3 "	28 " 8 "
October..	15 " 5 "	12 " 9 "	28 " 2 "
November..	15 " 2 "	13 " 0 "	28 " 5 "

Accidents to Vessels in the Harbour.

The only accident which occurred in the harbour was the grounding of the SS. *Lake Champlain* at the foot of the St. Mary's current on October 27.

When leaving the harbour at daylight the *Lake Champlain* met a snow flurry and the pilot decided to anchor in the wide portion of the channel opposite the Laurier pier. In swinging round, although the ship dropped anchor, she dragged with the current against the mud bank on the south side of the channel.

Tugs were immediately sent to pull the steamship off, but without success. The following day it was decided to lighten the ship and after some of that work had been carried out another attempt was made with tugs and again proved futile.

One day was lost on account of the high wind prevailing.

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On October 31, however, after 1,500 tons of cargo had been removed and some dredging done, the *Lake Champlain* was pulled out with the help of ten tugs and her own steam.

Slight damage only resulted to the rudder and propeller.

FIRES AND FIRE SERVICE.

For some time at the end of January and the beginning of February, the St. Lawrence sugar refinery had a fire burning in their coal piles at Pius IX ave. This fire was extinguished by keeping a hose playing water over the coal day and night. No damage was done to harbour property, except a small flooding of the low level tracks.

On April 14 (Good Friday) a fire occurred on the Mackay pier in a line of A.T.R. box cars. Help was promptly despatched over by the commissioners and the fire was checked after having destroyed 7 or 8 cars. No damage was done to harbour property.

On May 3, fire broke out in a wooden shanty belonging to a steamship company on the upper floor of shed No. 14. Overheating of the stove in the shanty is said to have been the cause of the fire. It was promptly put out by the fire brigade and no damage was done to harbour property.

A small fire occurred on barge *Ernest of Montreal*, moored at shed No. 14 on June 3, and was put out by the commissioners' hose before the arrival of the city fire brigade. Only insignificant damage was done.

On June 28 a small fire occurred in a Canadian Pacific railway car loaded with sweepings, near shed No. 10. It was extinguished by the hose on the pier before the arrival of the fire brigade.

Fire was discovered on June 30 in SS. *Manchester Corporation*, moored at Jacques Cartier pier, and was put out by the commissioners' hose before the arrival of the fire brigade.

Damage to harbour property amounting to about \$10 was done on July 20, owing to a fire in two railway cars, loaded with rubbish, standing near shed No. 9. The fire was extinguished by the city fire brigade and the commissioners' hose.

On October 1 a second fire occurred in a string of Grand trunk railway cars standing on the guard pier. As the fire brigade could not reach there the commissioners despatched a gang of their own men and the fire tug *St. Peter*. With this organization the fire was got under control in two hours.

The commissioners' hose on Bickerdike pier was used at intervals throughout the year to extinguish fire in the coal piles.

During the year five new fire alarm boxes were installed on the harbour at the following places:—

- 2 on Bickerdike pier.
- 1 at Longueuil ferry.
- 1 on Tarte pier,
- 1 at the coal towers, Hochelaga.

All these boxes are of the latest non-interference type.

Labour.

The following table shows the maximum and average number of workmen employed directly by the harbour commissioners during the season of 1911:—

	Maximum.	Average.
Construction of wharfs, elevator, &c.	1,313	1,135
Maintenance, cleaning, &c.	73	47
Harbour yard, carpenters, blacksmiths, &c.	11	9
Sawmill and timber boom, sawyers and handymen. .	32	27
Machine shop, machinists, blacksmiths, &c.	58	53

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Shipyards, carpenters, labourers, &c.	74	37
Dredging fleet, crews of dredges, tugs, &c.	268	238
Grain elevator, foreman and operators.	37	31
Floating elevators, foremen and operators	24	24
Shed repairs and maintenance.	19	8
	<hr/>	<hr/>
	1,909	1,609

The working day in general is 10 hours, but the hours were lengthened to 11 and 11½ hours during the busy season, and part of the work of construction and the dredging operations were carried on by both day and night shifts.

The report of Mr. A. D. Swan, resident engineer, with table of details of construction work, and tables of quantities and costs prepared by Mr. George Smart, accountant, are hereto annexed.

I am, sir,

Yours obediently,

FREDERICK W. COWIE,

Chief Engineer.

MONTREAL HARBOUR EXTENSIONS.

MONTREAL, December 31, 1911.

F. W. COWIE, Esq., B.A. Sc., M. Inst. C.E.,

Chief Engineer,

Harbour Commissioners of Montreal.

SIR,—I have the honour to present the following report showing the progress made during 1911 with the construction of new works, authorized under the 'Scheme for Montreal Harbour Extensions, 1909.'

The detailed drawings for the works to be constructed during 1911 were prepared during the winter season.

The floating derricks were taken from their winter quarters in the harbour on the 26th April, and owing to an enormous quantity of ice having piled on the old Victoria pier and low level wharfs, were employed clearing same until May 1st.

Dredging operations commenced on May 3rd.

Owing to the urgent necessity of carrying out the construction as rapidly as possible the dredges and derricks worked continuously during the night as well as by day from May 9th to December 4th. The work on shore, with the exception of the steam cranes, was for the most part carried on only by day.

The following is a summary of the principal works executed:—

1. The old wharf in front of new elevator No. 2 was removed to extreme low water level and a new concrete quay wall constructed in its place for a length of 393½ feet.

2. The whole of the foundation work for a new marine tower jetty in front of elevator No. 2 has been constructed, and the concrete quay walls for half its length and the foundations for the marine tower entirely completed.

3. The High Level Railway has been double tracked from Victoria pier to Molson's creek and a single track constructed from Molson's creek to Racine pier.

4. The Victor and Berri street subways have been completed.

5. The new high level Victoria pier quay wall has been entirely completed for a length of 601 feet and a further length of 139 feet has been nearly completed.

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6. A high level retaining wall has been constructed for 596 feet between the new Victoria pier and Market basin, and a ramp made connecting these wharfs.

7. A new concrete quay wall 935 feet in length has been constructed at the Market basin.

8. A high level concrete retaining wall has been constructed at the Market basin, between Victor street subway and Berri street subway.

9. An area of 6,443 square yards of granite paving has been laid at the Market basin. The concrete foundations for shed 16 on Victoria pier have been nearly completed and water service and sewers laid.

10. Dredging to the amount of 1,453,492 cubic yards has been done for the new dry dock basin, and eleven acres of land reclaimed from the river by depositing of the dredged material.

11. A considerable part of a new quay wall has been constructed at the dry dock basin; 800 lineal feet of foundation and about half the concrete superstructure on same has been completed.

12. A new concrete ferry pier landing stage 265 feet long has been constructed at St. Helen's island.

13. A new ferry pier for passengers has been almost entirely completed at the Racine wharf.

DESCRIPTION OF WORKS.

ELEVATOR NO. B—PART 1.

Item No. 1—Marine Tower Jetty.

The foundations for the marine tower jetty were dredged down to a depth of 38 feet below low water level. The outer end of the jetty consists of cribwork foundation, 200 feet long by 50 feet wide, filled with rock up to low water level, with concrete superstructure and reinforced concrete tower foundations, all of which have been practically completed.

The cribwork for the inner end of the jetty for a length of 167 feet has been completed, sunk and filled with rock.

The concrete of this jetty was prepared by an ordinary land mixer secured on a scow, and was lifted into place by No. 3 land crane also moored on the scow, the crushed stone being brought alongside on contractors' scows straight from the quarry.

A deep trench has been excavated from Commissioners street to elevator No. 2, in which has been laid a sewer, water pipes and electric cables.

Item No. 2—New Quay Wall in front of Elevator.

The work of removing the old sloping cribwork along the front of elevator No. 2 and replacing same, from low water level, with a concrete superstructure, was commenced on August 25, and 393 feet 6 inches out of the total of 600 feet has been entirely completed.

Owing to the material storage bins in connection with the elevator being erected on the site of this wall, the work was carried out in three separate lengths of about 130 feet each.

The material was excavated by hand and removed by scows. In order to strengthen the old cribwork and permit of deepening the harbour along the front of the new elevator No. 2 heavy timber sheet piling had been previously driven down to the rock, a depth of about 50 feet, along the whole length of this quay. The waling was then fixed along the front of the piles at low water level, and anchor bolts about 6 feet long were placed in position so as to secure the piles to the concrete superstructure.

The base of the concrete wall was reinforced with old permanent way rails and the wall was further anchored with 2½-inch tie rods partly embedded into the foundations of the elevator and part into concrete blocks.

The concrete material was stored in bins in front of the elevator whence it was measured out and mixed in an electrically driven machine close to the work, and the wall was completed November 27.

ITEM NO. 3—HIGH LEVEL RAILWAY TRACKS.

Lifting Track, &c.—Work was recommenced on the high level track system on May 10, the first work consisting of lifting the old low level tracks between the old jail ramp and the Dominion Coal Company's wharf, to permit of the high level embankment being widened to take two main tracks. A rubble stone temporary retaining wall for the embankment was also constructed from the jail ramp subway to the Longueuil ferry subway, to form a protection for the railway embankment.

Embankment.—On June 5, the Canadian Pacific Railway Company, under their agreement, recommenced dumping material from the Place Viger terminals to increase the width of the embankment between the jail ramp and the Longueuil ferry subway. This work was completed by June 22.

Permanent Way.—New additional permanent way has been laid for two tracks from Elevator No. 2 to Berri street subway and for an additional track from Berri to Beaudry streets; also for double tracking from the jail subway to Longueuil ferry subway, as well as from Richelieu street subway to Desery street and from Nicolet street to Molson's creek. At the latter point a very considerable amount of work has been done in connection with the track system by diverting the old low level track, on which the Canadian Northern railway line crossed Notre Dame street, to a new high level bridge constructed by them, which was opened for traffic on October 16.

In addition, a railway embankment has been constructed from Molson's creek along the foreshore to Racine pier and a single track laid thereon and connected with the track at Racine pier leading to the locomotive works. This embankment was formed by trimming up the old foreshore with No. 2 scraper bucket excavator. Where the track crossed the old drainage outlet at section 60 reinforced concrete pipes 39 inches in diameter have been laid.

Victor St. Subway.—The Victor street subway, having a span of 50 feet, had been constructed during 1910 of a sufficient length to carry four lines of way overhead, and the extension of this subway to carry six lines and a roadway was commenced on May 8 and was entirely completed, with the exception of the steel bridges, by the end of June.

Berri St. Subway.—The Berri street subway, having a span of 36 feet, had been constructed during 1910 of a sufficient length to carry three lines of way overhead, and the extension of this subway to carry six tracks and a roadway was commenced on June 2 and entirely completed, with the exception of the steel bridges, by the end of July.

The concrete in both subways was mixed by machine in close proximity to the work and deposited in place by travelling cranes.

The old Lacroix street sewer which passed through the Berri street subway and discharged into the harbour, was opened up and filled with muck, as owing to the alterations at the Place Viger terminals it was not further required.

ITEM NO. 4—NEW VICTORIA PIER AND MARKET BASIN.

New Victoria Pier.

Dredging.—During May a considerable amount of dredging was done at the outer end of the new Victoria pier, to permit of No. 4 crib being sunk. The material dredged had been placed there at the end of last season to protect the extreme outer end of the pier from ice shoves. It proved quite effective as no damage whatever was done to the pier during the winter.

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Cribs.—No. 4 crib, 160 feet long and having double face timbers, was completed to a height of 38 feet by the beginning of July, and before the end of the same month had been sunk and filled.

No. 5 crib specially constructed for the extreme end of the pier, has been practically completed but not sunk in position.

Concrete.—The concrete superstructure of the pier for a length of nearly 600 feet had been constructed during 1910 up to the height of the low level wharfs, and the concreting for raising the pier to high level was commenced on May 12 and completed by the end of June.

During July the concrete superstructure and shed buttresses were constructed on top of crib No. 4 up to the height of the low level wharfs.

Reinforced Concrete Blocks.—In order to ensure a good face on the concrete quay walls for a height of 4 feet from low water level, and at the same time decrease the cost by doing away with a lot of diver's work, preparing the forms under water, and further to admit of much greater rapidity of construction, a new type of reinforced concrete block, or shell, was designed and has been used throughout the season.

The blocks are moulded in lengths of 20 feet by 4 feet high and 15 feet in width for the high level walls, and 12 feet in width for the low level, and are so shaped that a concrete dowel is formed between each block when set in position.

The blocks were formed inside moulds in a small yard on the old Victoria pier specially reserved for this purpose. The concrete was allowed to set for not less than three weeks before the blocks were lifted. Altogether 91 blocks varying in weight from 10 to 12 tons were made, all of which were lifted and finally set in position in the various quay walls by No. 1 floating derrick. After the blocks were placed in position they were filled with ordinary mass concrete which was bonded to the reinforced blocks with strap irons embedded in the blocks.

Filling.—The New Victoria pier for a length of about 730 feet and an average width of about 160 feet has been filled up to a level of about 4 feet below cope. Most of this material with the exception of that at the extreme outer end has been deposited by city contractors, free of charge.

Shed Foundations.—Concrete buttresses had been constructed at 22-foot centres along the back of the new Victoria pier quay wall in order to form a base for the shed foundations. At either side of these buttresses two reinforced concrete piles were driven, and on the top, with a base spread over the buttresses and the piles, large rectangular concrete blocks were constructed to a level of 4 feet 6 inches below cope.

MARKET BASIN.

Dredging.—Dredging for the extension of the shore wharf of the Market basin was commenced on the 6th May and 935 lineal feet has been completed, joining up to the old concrete wharf at section 23.

Owing to the old wharf being in close proximity and founded at much higher level, the greater part of it collapsed from time to time as the dredging proceeded. This, however, was anticipated.

Cribwork.—The cribwork was founded at depths varying from 35 to 38 feet below low water level. Each of the cribs sunk was 45 feet wide at the base and 200 feet in length, with the exception of the last crib, which was 130 feet long.

Very great difficulty was encountered in sinking crib No. 9 owing to the swift currents in the river, and five tugs, two dredges and fifteen steel hawsers ashore were necessary to keep it in position while it was being sunk.

Junction with old Concrete Wharf.—In the narrow space between crib No. 10 of the Market basin and the old concrete wharf a cluster of piles was driven and bags of concrete rammed down to make same secure below low water, and a number of old permanent way rails were cantilevered over the top of the crib towards the old wall,

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but not connected to it so as to form a straight joint. Above this the ordinary mass concrete construction was carried out.

Concrete.—The superstructure of the quay wall was constructed of concrete from low water to cope level and was entirely completed, along with nine slipways, for a length of 935 feet.

Reinforced Concrete Blocks.—The new system of reinforced concrete blockwork, as already described for the Victoria pier, was used for the construction of the Market basin quay wall, and proved very effective in the rapid current.

Filling.—The filling at the back of the new quay wall for its whole length has been completed. This material was mostly deposited by city contractors, free of charge.

Planking Wharf and Slipways.—The first part of the Market basin wharf for a length of 800 feet, which was constructed last season, was planked for a width of about 30 feet from the back of the wall in front of the Richelieu & Ontario Navigation Company's sheds.

Retaining Wall from Victor to Berri Streets.—A heavy mass concrete retaining wall, 670 feet in length and 19 feet high, has been constructed between Victor street subway and Berri street subway. The work was commenced on May 12 and entirely completed by the middle of July.

The trench for this wall was excavated by No. 2 crane scraper bucket which worked very expeditiously. The concrete material was brought in on the high level tracks and shot down into the concrete mixer on low level, whence it was deposited into the wall by steam travelling cranes.

The wall is surmounted by an iron handrailing.

Retaining Walls and Ramp between Market Basin and Victoria Pier.—A new concrete retaining wall has been constructed from the Victoria street subway towards the outer end of the new Victoria pier for a total length of 596 feet. The excavation for this wall was done by manual labour. The concrete was mixed in close proximity to the work and deposited in place by a steam travelling crane.

At several places along this wall, where the foundation was somewhat soft, the base of the wall was reinforced with old permanent way rails.

A new ramp and roadway, 20 feet wide, has been constructed at this place to form an easy access between the high and the low level wharfs.

Iron handrailings have been erected along the top of the walls.

Paving.—The whole of the low level Market basin wharf extending from in front of the Victor subway to the Berri street subway has been graded, concrete foundations laid and paved with granite blocks for a total area of 6,443 square yards.

ITEM NO. C 5.—DOMINION COAL TOWERS, HOCHELAGA.

Filling.—A considerable quantity of additional filling was deposited between the new quay wall constructed last season and the old shore wharf. This filling was graded and 560 lineal yards of permanent tracks laid for sidings.

ITEM NO. 16—DRY DOCK BASIN.

Excavation and Dredging.—Dredging on the site of the entrance channel of the dry dock and the basin itself, was commenced on May 3. Night work with the Harbour Commissioners dredges and derricks was commenced on the 9th May and work proceeded continuously night and day until the 4th December. During this period the total amount of material dredged was 1,453,492 cubic yards, completing about 60 per cent of the whole amount of dredging in connection with the dry dock.

Nearly five acres of land has been reclaimed from the river and completed to grade at cope level, while fully 12 acres has been reclaimed to above water line, making the total area of reclaimed land nearly 17 acres.

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Quay Wall of Dry Dock Cribwork.—Four timber cribs having double face timbers and each 200 feet long by 45 feet wide at the base have been completed, sunk and filled to a level of 33 feet below low water, and the fifth crib 100 feet long has been nearly completed.

Reinforced Concrete Blocks.—Reinforced concrete blocks have been placed and secured on top of the cribwork for a length of 760 feet, all as already described.

Concrete Superstructure.—The concrete superstructure of the quay wall was commenced on October 17 and stopped for the season on November 3. 280 feet 6 inches of the wall has been constructed to a height of 13 feet above low water, 161 feet to 8 feet 6 inches above low water, 80 feet to 5 feet 9 inches above low water and 240 feet to 4 feet above low water.

The concrete for this work was made for the most part with the large floating rock crushing and concrete mixing machine, and a small part with the mixing plant erected on a scow, as already described, and used for the marine tower jetty.

Manoeuvring Attachments.—Special manoeuvring attachments for the floating dock have been manufactured and placed in position in the wall, with long anchor tie-rods embedded in large concrete blocks, 50 feet from the face of the wall.

Dredging Plant.—The dredging plant at the dry dock consisted of dredges Nos. 1, 10 and 11 of the Marine and Fisheries Department, the dredge *International* hired from the Public Works Department, and for the most of the season two H.C.M. dredges.

The material was conveyed in dump and flat scows to three floating derricks and two land cranes by which it was deposited to form the reclaimed land on which the machine shops and shipbuilding plant are to be erected.

Railway Siding.—A railway siding 400 yards in length has been laid from the main line track at section 52 over the newly graded embankment in an easterly direction towards the new quay wall.

DREDGING AND FILLING IN GENERAL.

ITEM NO. 14.

Diversion of Guard Pier.—Dredging for diversion of the guard pier was recommenced on May 15 and the material deposited further out into the river along the line of the centre of the new pier, so as to divert the current and extend the area of still water in the upper harbour. The material up to low water level was for the most part deposited by dump scows, while the embankment above water level was formed by a floating derrick. The length of pier diversion, partially constructed during the season, is 1,500 feet.

Dredging Channel South of St. Helen's Island.—The dredge *Premier* commenced work dredging the channel between the south shore and St. Helen's island on July 5 and continued working during the day until November 11.

The material dredged, for the most part was, rough gravel and small boulders and was conveyed in dump scows to the diversion of guard pier.

On August 31, one H.C.M. spoon dredge also started work on the south shore channel and continued there working day and night until November 30.

Altogether 157,145 cubic yards were dredged for the formation of this channel.

Dredging the Upper Harbour and Rock Drilling and Blasting.—A considerable quantity of rock was drilled, blasted and dredged in the upper harbour for the combined purpose of obtaining rock filling for the new wharf work and at the same time deepening the upper harbour. The part operated on was at sections 14, 15 and 16 and the material consisted of hard shale and trap rock. The blasting was done from the drill boat which commenced work on May 18 and continued until November 14.

The number of holes drilled and blasted was 2,556, the average depth of the holes being about 10.96 feet. The total quantity of rock drilled and blasted to a depth of 36.06 feet below low water was 44,868 cubic yards measured in situ. The quantity of dynamite used was 17,678 lbs.

ITEM A1.

St. Helen's Island Ferry Wharf.—A new ferry wharf has been constructed at St. Helen's island for the ferry boat traffic between Victoria pier and the island.

Work was commenced on May 15 and the wharf, although barely completed, was taken into use by the ferry company for traffic on August 5.

The wharf, which has a depth in front of 10 feet at low water, is 265 feet in length and 75 feet wide. It is connected with the shore by a roadway also 75 feet wide. The substructure consists of timber cribwork of the standard design with a concrete superstructure with four slipways. The upstream corner of the pier has been specially constructed and heavily reinforced with old permanent way rails to withstand the ice shoves.

The concrete was mixed and deposited in place by the floating rock crushing and concrete mixing plant while the filling was deposited by a floating derrick.

Owing to the extreme low water in the river during the latter part of the summer, there was not sufficient depth to permit of the H.C.M. tugs crossing to the island and the filling was therefore barely completed, but a few days in the spring when water is high will be sufficient to complete the small quantity of filling still required.

ITEM NO. A6.

New Ferry Wharf at Racine Pier.—A new wharf has been constructed immediately below Racine pier for ferry-boat traffic to King Edward park. This wharf is 400 feet long and consists of timber piling provided with the necessary slipways for the convenience of passengers and vehicles and backed by an earthwork embankment 170 feet wide.

The piling has been entirely completed and braced. About $\frac{2}{3}$ of the filling has been deposited and the whole work practically completed with the exception of the timberdecking of the wharf.

Widening the Channel in St. Mary's Current.—On September 11 Marine and Fisheries dredge No. 1 was taken from the dry dock site and started work in the St. Mary's current where she continued at work until November 22.

The area dredged extends for a length of 1,800 feet by about 300 feet, or a total of 57,401 cubic yards scow measurement.

Removal of Wrecks in the Channel.—On October 12, 1910, a sand barge was wrecked in the St. Mary's current and ice formed in the river before it could be removed.

During winter it was decided to blast the wreck, which was successfully done during the last week of February. In the spring the channel was swept and the blasted pieces of the barge removed.

The old No. 1 H. C. M. dredge which was wrecked on September 29, 1905, and which has been lying on the bottom of the river at section 41, was also blasted during the winter and broken up; a considerable part, however, remained, which, after examination by a diver who at the same time made fast to the wreckage with chains, was ultimately lifted by a dredge.

Removal of City Sewage from Elgin Basin.—On November 26, the harbour plant commenced dredging the sewage deposited from the mouth of the Elgin Basin sewer at section 15. The material dredged was towed outside the guard pier and dumped into the swift current.

The Taking of the Ice.—Winter 1910-1911.—On December 5, with a temperature of 12 above zero, the plant was laid up as ice had begun forming on the river and the water was gradually rising.

On December 7, the Longueuil ferry boat left for winter quarters. By December 16 the ice was forming up and on the 17th it had filled up in the river as far as the back of the machine shop. On the 18th a small ice shove occurred and on the 19th the river was open again down to near the Tarte pier. By the 21st the ice had filled up to the

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Dominion coal wharf, and by the 24th it had again filled up as far as the back of the machine shop, and by the 31st it had settled and on that date foot passengers were crossing the river from Longueuil, and by January 3, 1911, the road over the ice to Longueuil was commenced.

A large hole remained open the whole winter from about opposite the back of the machine shop down to the Longueuil ferry wharf.

Breaking up of the Ice.—The first ice shove of the season occurred on April 11, starting from about the 9th and 10th piers of the Victoria bridge, city side. Little change occurred, however, until the night of the 13th when a movement took place above the bridge.

On the morning of the 15th the ice below the bridge on the St. Lambert side had moved down to St. Helen's island, but no other movement had taken place below and foot passengers were continuing to cross to Longueuil. About midday, however, the ice commenced to move from the bridge and piled to a height of about 30 or 40 feet on Moffatt's island. Later in the day the road to Longueuil was broken and the ice shoved down to Laurier pier.

On April 17 the M. and F. tug *Champlain*, which had been moored at the Alexandra pier was put under steam and moved up to Windmill point.

On the 20th a shove occurred below Longue Pointe, but there was still practically no movement at Maisonneuve.

On the night of the 21st there was quite a shove in the upper harbour, and the river was open in the channel down as far as the Tarte pier.

On the 23rd the Longueuil and Boucherville ferry boats left their winter quarters and came up by the south shore to the Tarte pier.

The ice breaker *Lady Grey* arrived in the harbour from Quebec on the 25th and the channel was reported practically clear.

The M. and F. tug *Shamrock* placing the buoys reached the upper harbour on the 27th and the first steamer arrived on April 29.

A schedule of the measurement of work done during 1911 is appended hereto.

A. D. SWAN,

Resident Engineer.

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SCHEDULE OF MEASUREMENT OF WORK EXECUTED, 1911.

ITEM No. 2.—PART 1.

ELEVATOR No. 2

Item No.	Description.	Quantity.
1.—Marine Tower Jetty.		
Dredging.....		12,300 cu. yds.
Job 6 Cribbs.....		674,362 cu. ft.
Job 7 Quay Wall		
a Concrete.....		2,763 cu. yds.
c Reinforced concrete in tower.....		3,600 cu ft.
d Reinforcement of rails.....		2,240 lin. ft.
Job 8 Anchor blocks, concrete.....		10 cu. yds.
Tie rods 40 ft. long.....		8 number.

2.—New Quay Wall in front of Elevator.

Job 10a	Excavation.....	6,060 cu. yds.
	Cutting heads of piles.....	393 lin. ft.
	12' x 16' timber waling.....	524 cu. ft.
b Concrete.....		3,770 cu. yds.
d Anchor blocks, concrete.....		28 cu. yds.
	Tie rods 22 ft. long.....	9 number.
	Tie rods 50 ft. long.....	2 number.
	Tie rods 60 ft. long.....	2 number.
e Reinforcement of rails.....		520 lin. yds.
f Track.....		500 lin. yds.
g Pipe track at end of Elevator No. 2.....		30 lin. yds.
	" " excavation.....	150 cu. yds.
h Piling.....		1,000 cu. yds.
i Drain.....		3 lin. yds.

ITEM No. 3.

HIGH LEVEL RAILWAY TRACKS.

Job 2	Track diverted.....	200 lin. yds.
	Track ballasted and raised.....	333 lin. yds.
	Track lifted.....	1,433 lin. yds.
	Track removed.....	666 lin. yds.
Job 4	Drains, 12 inch.....	140 lin. yds.
	Drains 36 inch.....	18 lin. yds.
Job 5	Temporary retaining wall.....	
a Taken down.....		186 cu. yds.
b Taken down and rebuilt.....		2,922 cu. yds.
c Built.....		300 cu. yds.
Job 6	Embanking.....	
a By H. C. M.....		61,785 cu. yds.
b By C. P. R.....		33,673 cu. yds.
c By city contractors.....		13,663 cu. yds.
Job 7	Victor St. subway.—	
a Excavation, abutments.....		341 cu. yds.
b Concrete.....		445 cu. yds.
e Drains, 12 inch laid.....		13 lin. yds.
	Drains 6 inch laid.....	20 lin. yds.
	Drains, 12 inch lifted and relaid.....	22 lin. yds.
	Cesspools and gratings.....	2 number.
f Railing, chain gate.....		1 number.
i Roadway—		
	Excavation.....	625 cu. yds.
	Concrete bottoming.....	478 sq. yds.
	Paving with granite blocks.....	450 sq. yds.
	Water channels.....	28 sq. yds.
j Sidewalk		
	Stone bottoming.....	73 sq. yds.
	Cement sidewalk.....	73 sq. yds.
	Kerb.....	37 lin. yds.
Job 9	Berri St. Subway.	
a Excavation, abutments.....		534 cu. yds.
b Concrete abutments.....		848 cu. yds.
d Drains, 12 inch laid.....		20 lin. yds.
	Drains, 6 inch laid.....	40 lin. yds.
	Drains, 12 inch lifted and relaid.....	10 lin. yds.
	Cesspools and gratings.....	3 number.

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SCHEDULE OF MEASUREMENT OF WORK EXECUTED, 1911—*Continued.*

Item No. 3.	Description.	Quantity.
	Filling up and making good old Lacroix St. sewer.	
e	Railing chain gate.....	1 number
g	Roadway—	
	Excavation.....	225 cu. yds.
	Concrete bottoming.....	482 sq. yds.
	Paving with granite blocks.....	442 sq. yds.
	Water channels.....	40 sq. yds.
h	Sidewalk—	
	Stone bottoming.....	48 sq. yds.
	Cement sidewalk.....	48 sq. yds.
	Kerb.....	27 lin. yds.

ITEM No. 4.

NEW VICTORIA PIER AND MARKET BASIN.

Item No.	Description.	Quantity.
<i>New Victoria Pier.</i>		
Job 2	Dredging.....	7,787 cu. yds.
Job 3	Cribs.....	1,250,000 cu. ft.
Job 4	Concrete quay wall.....	3,775 cu. yds.
Job 5	Filling—	
a	By city contractors.....	77,739 cu. yds.
b	By derrick.....	36,868 cu. yds.
Job 9	Buttresses, concrete.....	270 cu. yds.
	Buttresses, reinforcement of rails.....	312 lin. ft.
Job 12	Anchor blocks, No. 9.....	63 cu. yds.
	Excavation for same.....	163 cu. yds.
Job 14	Reinforced concrete blocks, No. 7.....	890 cu. ft.
Job 17	Track.....	160 lin. yds.
<i>Market Basin.</i>		
Job 1	Dredging.....	3,437 cu. yds.
Job 2	Cribs.....	2,287,400 cu. ft.
Job 3	Quay wall, concrete.....	5,009 cu. yds.
	Junction of new quay wall with old concrete wall—	
	Piling.....	400 cu. ft.
	Reinforcement of rails.....	120 lin. ft.
	Bagwork.....	100 cu. ft.
Job 4	Filling—	
a	By city contractors.....	60,369 cu. yds.
b	By derrick.....	146,127 cu. yds.
Job 5	Drains.....	15 lin. yds.
Job 6	Slips—	
a	Paving with scoria blocks.....	1,017 sq. yds.
b	Reinforcement of rails.....	1,515 lin. ft.
Job 7	Planking wharf and Slips.....	7,298 sq. ft.
Job 8	Reinforced concrete blocks, No. 46.....	5,387 cu. ft.
Job 9	Retaining wall, Victor to Berri.	
a	Excavation.....	1,320 cu. yds.
b	Concrete.....	1,437 cu. yds.
d	Railing.....	670 lin. ft.
e	12 in. drain alongside on high level.....	100 lin. yds.
	Excavation for same.....	125 cu. yds.
	Excavation for side drains.....	27 cu. yds.
	Cesspools.....	2 number.
Job 10	Retaining Walls—	
	(East) Excavation.....	640 cu. yds.
	“ Concrete.....	1,276 cu. yds.
	“ Reinforcement of rails.....	193 lin. yds.
	(West) Excavation.....	200 cu. yds.
	“ Removal of embankment.....	200 cu. yds.
	“ Concrete.....	782 cu. yds.
	“ Reinforcement of rails.....	440 lin. yds.
d	Railing.....	586 lin. ft.
Job 11	Anchor blocks, concrete.....	231 cu. yds.
	Excavation.....	155 cu. yds.
	Tie rods 60 ft. long.....	34 number.
	Tie rods 87 ft. long.....	3 number.

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SCHEDULE OF MEASUREMENT OF WORK EXECUTED, 1911—*Continued.*

Item No. 4.	Description	Quantity.
Job 15	Paving Wharf—	
a	Excavation.....	3,519 cu. yds.
b	Concrete bottoming.....	6,443 sq. yds.
c	Paving with granite blocks.....	6,443 sq. yds.

Item No.	Description	Quantity.
Job 16	Cement sidewalk.....	235 sq. yds.
	Stone bottoming.....	235 sq. yds.
	Kerb.....	239 lin. yds.
	9 inch drains.....	15 lin. yds.
	Cesspools.....	1 number.
	Foundation for shed 16 on Victoria Pier, concrete.....	555 cu. yds.

ITEM No. 16.

DRY DOCK BASIN.

Job 1	Dredging by H. C. M. dredges.....	714,142 cu. yds.
	Dredging by P. W. D. dredges.....	103,900 cu. yds.
	Dredging by M. & F. dredges.....	635,450 cu. yds.
Job 3	Grading.....	31,000 sq. yds.
Job 4	Cribs.....	953,600 cu. ft.
Job 5	Quay wall, concrete.....	4,262 cu. yds.
Job 6	Anchor blocks, concrete.....	76 cu. yds.
	Tie rods 60 ft. long.....	10 number.
Job 7	Reinforced concrete blocks No. 38.....	4,830 cu. ft.
Job 8	Track.....	427 lin. yds.
	Test Pit excavation.....	10 cu. yds.
	“ concrete block.....	2¼ cu. yds.
	Manoeuvring shackles.....	2 number.

ITEM No. 14

DREDGING & FILLING IN GENERAL.

3.—*Diversion of Guard Pier.*

Job 1	Dredging.....	231,915 cu. yds.
Job 2	Embanking.....	170,727 cu. yds.

4.—*Dredging South Shore Channel.*..... 139,545 cu. yds.5.—*Dredging in General.*..... 118,711 cu. yds.

ITEM A.

1.—*St. Helens' Island Ferry Wharf.*

Job 1	Dredging by derrick.....	150 cu. yds.
Job 2	Cribs.....	69,120 cu. ft.
Job 3	Quay wall, concrete.....	1,009 cu. yds.
	Quay Wall, reinforcement rails.....	300 lin. ft.
Job 4	Anchor blocks concrete.....	35 cu. yds.
Job 5	Filling by derrick.....	27,188 cu. yds.

6.—*New Ferry Wharf at Racine Pier.*

Piling.....	13,000 cu. ft.
Filling.....	40,000 cu. ft.

ITEM C.

4. Track laid on Bickerdike Pier or the Nova Scotia Steel and Coal Co.....	296 lin. yds.
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SCHEDULE OF MEASUREMENT OF WORK EXECUTED, 1911—*Concluded.*5.—*Dominion Coal Towers.*

Track laid.....	560 lin. yds.
Filling.....	2,850 cu. yds.
4. Track laid on Laurier Pier.....	30 lin. yds.
4. Track laid on Tarte Pier.....	340 lin. yds.
Connection with Canadian Northern Railway at Molson's Creek.....	93 lin. yds.
Siding at Racine Pier for the Locomotive Works..... (Both included in High Level Railway).	130 lin. yds.
Road on Tarte Pier, grading and macadamizing.....	2,833 sq. yds.
Dredging Ship Channel in Harbour (by M. & F. dredge)	57,401 cu. yds.

HARBOUR DREDGING.

STATEMENT showing the number of days worked by each dredge and the quantity dredged at each place in the Harbour of Montreal in 1911.

Number or Dredge.	Places at which Dredging was done.	TIME OF SERVICE.		QUANTITIES DREDGED.		Character of Material Dredged.
		Days.	Total.	Cubic Yards.	Total Yards.	
Spoon Dredge John Kennedy (No. 2)	Sec. 19 Marine Tower Jetty.....	11		11,400		Sand, clay and silt.
	Sec. 19 Victoria Pier.....	14		7,637		Sand, silt and loose rock.
	Sec. 20-23 Market Basin.....	61½		35,822		Sand and stones, some loose rock.
	Sec. 57 Dry Dock Basin.....	2		66,625		Gravel, silt and clay, some loose rock.
	Sec. 19-20 Guard Pier.....	68½		66,470		Silt and stones, some loose rock.
	South Channel.....	12½		34,310		Hard pan, stones and boulders.
	General dredging to obtain filling.....	35	317		223,064	Blasted rock, some mud.
Spoon Dredge No. 4.....	Sec. 19 Marine Tower Jetty.....	3½		900		Sand, clay and silt.
	Sec. 19 Victoria Pier.....	49		150		Loose rock.
	Sec. 57 Dry Dock Basin.....	117		93,550		Gravel, silt, clay, some hard pan.
	Sec. 19-20 Guard Pier.....	30		165,290		Silt and stones, some loose rock.
	South Channel.....	119		26,300		Hard pan, stones and boulders.
	General dredging to obtain filling.....		319	84,401	370,591	Blasted rock, some mud.
Spoon Dredge No. 5.....	Sec. 20-23 Market Basin.....	1		675		Sand and stones, some loose rock.
	Sec. 57 Dry Dock Basin.....	338		619,792		Gravel, silt, clay, some hard pan.
Dredge Premier.....	South Channel.....	108		46,775		Gravel, silt, hard pan, some rock.
			1,083		1,260,897	
Dredge International (Chartered).....	Sec. 57 Dry Dock.....	89			103,900	Gravel, silt, clay, some hard pan.
	Grand Total.....		1,172		1,364,797	

GEORGE SMART,
Accountant.

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HARBOUR OF MONTREAL.

STATEMENT showing the number of days worked and the quantity dredged at each place in the Harbour of Montreal in 1911
(The quantities are cubic yards, scow measurement, and the cost includes everything except derrick work.)

Places where Dredges Worked	Vessels.	TIME OF SERVICE.		QUANTITY DREDGED.		COST PER CUBIC YD.		Total. Cost.	Grand Total.	Remarks.
		Days.	Total. Days.	Cubic Yards.	Total Yards.	Each Dredg. Cents.	Average Cents.			
Marine Tower Jetty, Sec. 19.....	Dredge John Kennedy " No. 4.....	11 3½	14½	11,400 900	12,300	15-48 65-70	20-11	\$ c. 1,765 50 591 29	2,356 79	
New Victoria Pier, Sec. 19.....	" John Kennedy " No. 4.....	14 ½	14½	7,637 150	7,787	29-42 56-31	31-76	2,247 00 84 47	2,331 47	
Market Basin, Sec. 20-23.....	" John Kennedy " No. 5.....	61½ 1	62½	35,822 675	36,497	27-55 26-00	29-21	9,870 75 175 48	10,046 23	
Dry Dock Basin, Sec. 57.....	" John Kennedy " No. 4.....	2 49	389	800 93,550	714,142	40-12 8-89	9-29	321 00 8,278 06	67,911 80	
Guard Pier, Sec. 19-20.....	" John Kennedy " No. 4.....	68½ 117	185½	66,625 165,290	231,915	16-50 11-96	13-61	10,994 25 19,766 24	30,760 49	
South Channel.....	" John Kennedy " No. 4.....	125 30	263	66,470 26,300	139,545	30-18 19-27	32-15	20,063 00 5,068 20	45,628 59	
Gen'l Dredging to obtain filling.....	" Premier..... " John Kennedy " No. 4.....	108 35 119	154	46,775 34,310 84,401	118,711	43-82 16-37 23-82	22-13	20,497 39 5,617 50 20,104 36	25,721 86	
Dry Dock Basin, Sec. 57.....	" International.....	1083	89	1,260,897	103,900		14-65		184,757 23	
Grand Total.....		1,172		1,364,797			15-07		20,929 57	
									205,686 80	

For Character of Material Dredged
see Accompanying Table.

GEORGE SMART,
Accountant.

HARBOUR DREDGING.

Cost of Harbour Dredging Fleet in 1911 (including all charges for tow scow and derrick service—credits for work outside of regular service not included.

Name of Dredge.	Days Service of Dredge.	COST OF DREDGES.		COST OF TUGS.		COST OF SCOWS, c.		COST OF DREDGE, INCLUDING SCOW AND TUG SERVICE.	
		Per day of Dredge.	Total.	Per day of Dredge.	Total.	Per day of Dredge.	Total.	Per day.	Total.
		\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.	\$ c.
Dredge John Kennedy.....	317	56 02	17,757 52	70 16	22,241 02	34 32	10,880 96	160 50	50,879 50
" No. 4.....	319	64 46	20,562 25	70 16	22,381 34	34 32	10,949 61	168 94	53,893 20
" No. 5.....	339	71 00	24,067 60	70 16	23,783 54	34 32	11,636 08	175 48	59,487 22
" Premier.....	108	85 30	9,212 70	70 16	7,577 48	34 32	3,707 13	180 70	20,497 31
Harbour Dredges.....	1,083	66 11	71,600 07	70 16	75,983 38	34 32	37,173 78	170 60	184,757 23
Dredge International.....	89	165 00	14,685 00	70 16	6,244 57	34 32	.....	235 16	20,929 57
Totals and Averages.....	1,172	.....	86,285 07	.....	82,227 95	.....	37,173 78	.....	205,686 80

Floating Derricks employed in handling material dredged..... 66,151 84

Cost of Dredging Fleet proper.....
 Drilling and Blasting Boats employed at rock blasting.....
 Total Cost, including Drilling and Blasting Boats.....

GEORGE SMART,
Accountant.

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HARBOUR DREDGING.

STATEMENT showing cost of Harbour Commissioners' Dredging by different Dredges with their proportion of Scow and Tug Service for 1911.

Vessels.	DREDGE SERVICE.	TUG SERVICE.	SCOW SERVICE AND SUNDRIES.	DREDGE WITH TUG AND SCOW SERVICE.	TIME OF SERVICE.	Cost per working day of Dredge.	QUANTITY DREDGED.	Average Cost per Cubic Yard.	Additional Cost for unloading by Derrick.	PROPORTION OF MATERIALS DREDGED.	
	Cost.	Proportion Cost.	Proportion of Cost.	Cost.	Days.					Earth.	Rock.
Dredge John Kennedy " No. 4..... " No. 5..... " Premier.....	\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.		Cts.	Cts.		
	17,757 52	22,241 02	10,880 96	50,879 50	317	160 50	223,064	22.81	05-197	85%	15%
	20,562 25	22,381 34	10,949 61	53,893 20	319	168 94	370,591	14.54	05-197	97½%	2½%
	24,067 60	23,783 54	11,636 08	59,487 22	339	175 48	620,467	9.59	05-197	100%	
Harbour Dredges..... Totals and Averages..	9,212 70	7,577 48	3,707 13	20,497 31	108	189 78	46,775	43.82	05-197	98%	2%
	71,000 07	75,983 38	37,173 78	184,757 23	1,083	170 60	1,260,897	14.65	05-197	96%	4%
	14,685 00	6,244 57	.....	20,929 57	89	235 16	103,900	20.14	05-197	100%	
Dredge International (Chartered).....	86,285 07	82,227 95	37,173 78	205,686 80	1,172	1,364,797	15.07	05-197	96½%	3½%

GEORGE SMART,
Accountant.

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HARBOUR DREDGING.

STATEMENT showing particulars of Cost of Working the different Vessels employed in Harbour Dredging in 1911.

Vessels.	Repairs and Maintenance.	Fuel.	Wages of Crews.	Proportion of Salaries of Staff.	Cost.	Less Credits.	Net Cost.	Total Cost.	Days of Service.	Cost per Day.
	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.		\$ cts.
Dredge John Kennedy	7,994 18	3,133 75	9,841 15	535 94	21,555 02	3,797 50	17,757 52	.....	317	56 02
" No. 4.....	7,820 55	3,135 00	10,168 09	538 61	21,662 25	1,100 00	20,562 25	.....	319	64 45
" No. 5.....	9,601 37	3,548 35	10,330 00	587 88	24,067 60	.....	24,067 60	.....	339	70 99
" Premier.....	5,023 69	588 75	3,296 56	303 70	9,212 70	.....	9,212 70	.....	108	85 30
Dredges—Total.....	30,439 79	10,455 85	33,635 80	1,966 13	76,497 57	4,897 50	.....	71,600 07	1083	66 11
Floating Derrick No. 1.....	2,804 31	1,810 80	7,622 55	406 03	12,643 69	2,230 00	10,413 69	.....	307 3/4	41 08
" No. 3.....	11,066 28	1,927 50	7,138 15	675 90	20,807 83	240 00	20,567 83	.....	339	61 38
" No. 4.....	1,770 64	1,930 50	7,579 77	373 40	11,654 31	450 00	11,204 31	.....	336 3/4	32 03
" No. 5.....	2,782 51	1,816 00	7,180 74	390 38	12,169 63	960 00	11,209 63	.....	338 1/2	35 95
" No. 6.....	3,042 61	2,130 00	7,522 07	421 70	13,116 38	360 00	12,757 38	.....	347	37 80
Floating Derricks—Total.....	21,466 35	9,614 80	37,043 28	2,267 41	70,391 84	4,240 00	.....	66,151 84	696	41 50
Tug Alphonse Racine.....	1,487 48	3,495 00	5,383 92	353 31	10,719 71	360 00	10,359 71	.....	360	29 77
" Robert Mackay.....	5,740 02	4,046 25	5,984 60	537 65	16,308 52	86 00	16,222 52	.....	387	42 14
" Aberdeen.....	1,159 79	3,583 75	5,863 18	361 59	10,968 31	.....	10,968 31	.....	386	28 41
" St. Peter.....	2,575 96	2,598 25	4,101 06	315 15	9,560 42	6,280 21	3,280 21	.....	198	48 28
" Courier.....	344 21	376 50	1,396 73	72 08	2,189 52	2,189 52	.....	.....	179	12 23
" No. 1.....	2,184 71	1,807 50	4,492 04	289 20	8,773 45	.....	8,773 45	.....	343	25 58
" Beaver.....	4,323 90	1,337 23	2,449 53	276 42	8,387 08	68 00	8,387 08	.....	170	49 33
" J. Young.....	2,015 24	2,987 30	4,545 34	325 41	9,873 29	.....	9,805 29	.....	297	33 24
" Sir Hugh Allan.....	5,170 16	2,373 75	7,337 77	542 26	15,433 94	992 56	14,431 38	.....	209	73 80
Tugs—Total.....	25,001 47	22,575 53	41,554 17	3,073 07	92,204 24	9,976 29	.....	82,227 95	2,529	36 45
Scows and Sundry Plant.....	38,120 86	30 00	1,919 52	954 07	41,024 45	3,850 67	.....	37,173 78	.....	.....
Drilling and Blasting Boats.....	6,240 94	1,230 00	7,125 18	264 01	14,860 13	14,860 13	171	86 90
	121,269 41	43,906 18	121,277 95	8,524 69	294,978 23	22,964 46	272,013 77

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GEORGE SMART,
Accountant.

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HARBOUR DREDGING.

COMPARATIVE cost from 1876 to 1911, inclusive (the quantities are scow measurement, and the cost includes handling by floating derricks).

Years.	Cubic Yards Dredged	Total Cost	Cost per Cubic Yd.	Kind of Dredges Employed.
		Dollars.	Cents.	
1876.....	156,082	55,462	35·5	
1877.....	173,499	45,103	26·...	
1878.....	211,731	48,748	23·...	
1879.....	189,609	41,006	21·63	
1880.....	186,430	46,914	25·16	
1881.....	170,764	54,128	31·69	
1882.....	187,339	53,598	28·1	Spoon dredges and stone-lifters.
	9,429	13,254	140·6	Elevator dredges.
	196,768	66,852	33·1	Totals and average.
1883.....	36,358	17,956	49·38	Spoon dredges and stone-lifters.
	6,990	19,385	2·77·3	Elevator dredges—lifting rock and boulder and clearing up.
	43,348	37,341	86·14	Totals and average.
1884.....	125,648	49,468	39·06	Spoon dredges and stone-lifter.
1885.....	69,494	28,563	41·1	" "
1886.....	57,728	25,772	44·	" "
1887.....	36,993	23,259	62·	" "
* 1888.....	73,150	36,690	50·16	Elevator dredges.
	2,077	1,333	64·18	
	75,227	38,023	50·54	
1889.....	205,283	54,574	26·58	Spoon dredges and stone-lifters.
	9,420	2,996	31·8	Elevator dredge.
	214,703	57,570	26·...	Totals and average.
1890.....	36,670	53,674	28·6	Spoon dredges and stone-lifters.
1891.....	259,267	49,571	19·12	Spoon dredges.
	43,290	14,232	32·87	Elevator dredges.
	302,557	63,803	21·08	Totals and average.
1892.....	361,947	93,595	25·58	Spoon dredges.
1893.....	235,280	93,050	39·55	"
1894.....	312,430	98,858	31·64	"
1895.....	496,528	99,400	20·02	"
1896.....	401,938	103,317	25·7	"
1897.....	284,844	68,211	23·95	"
1898.....	456,458	61,012	13·37	"
1899.....	963,131	100,163	10·77	"
1900.....	1,323,871	163,541	12·25	"
1901.....	1,359,221	190,242	14	"
1902.....	1,179,726	217,986	18·48	"
† 1903.....	854,510	226,736	26·53	"
1904.....	810,723	247,914	30·58	"
1905.....	324,187	141,059	43·51	"
1906.....	246,525	113,749	45·94	"
1907.....	257,321	112,611	43·76	"
1908.....	186,873	106,115	51·40	"
1909.....	233,535	92,294	39·52	"
1910.....	794,994	168,218	21·17	
1911.....	1,364,797	271,839	19·92	Spoon dredges and 1 elevator do.

*Interest and depreciation are not included in cost as given here.

†Includes depreciation and every expense except interest.

GEORGE SMART,
Accountant.

SESSIONAL PAPER No. 21

EXPENDITURE ON CAPITAL ACCOUNT.

STATEMENT showing Expenditure by the Engineering Department for the year ended December 31, 1911.

EXPENDITURE ON CAPITAL ACCOUNT.

Harbour Extensions:—

<i>Item No. 2, Part 1.—Marine Tower Jetty Quay Wall.—</i>		
Removal of cribwork, &c.....	\$116,535.36	
<i>Part 2.—Elevator Construction.—</i>		
J. S. Metcalf Coy's contract.....	846,617.10	
<i>Item No. 3.—Improvement and Extension of Tracks.—</i>		\$963,152.46
Embanking, subways, bridges, &c.....		187,640.22
<i>Item No. 4.—New Victoria Pier and Market Basin.—</i>		
Excavation, quay walls, filling, grading, &c.....		326,057.66
<i>Item No. 14.—Dredging and Filling in General.—</i>		
Dredging South Channel, altering lower end of guard pier,		
Dredging and blasting inside of guard pier to obtain		
Filling.....		125,129.11
<i>Item No. 16.—Dry Dock Basin and Wharfs.—</i>		
Dredging basin.....	\$ 91,915.13	
Filling reclaimed area.....	59,948.99	
Permanent quay walls.....	107,205.23	
<i>Item E.—Permanent Sheds on Tarte Pier.—</i>		259,069.35
Shed construction.....	89,283.72	
Drains and water service.....	3,103.84	
<i>Item No. 5.—Permanent Sheds on High Level Victoria Pier.—</i>		92,387.56
Piling foundations.....	\$ 15,764.21	
Concrete walls and piers.....	14,213.04	
Steel superstructure.....	39,229.14	
<i>Item A.—General Improvements and Plant.—</i>		69,206.39
St. Helen's Island Ferry Wharf.....	\$ 23,118.51	
Wharf office building.....	32,128.66	
Inspection Tug, Sir H. Allan.....	120,998.26	
Dredge No. 6 under construction.....	52,152.94	
Racine Pier, pile wharf.....	14,677.80	
<i>Item B.—Terminal Facilities, &c.—</i>		243,076.17
New harbour yard and engine house.....	\$ 44,219.42	
Electric Hoist, King Edward Pier.....	22,177.44	
McGill Street Flood Gate (Bal.).....	265.90	
<i>Item C.—General Harbour Improvements.—</i>		66,662.76
(In progress before 1910).		
Windmill Point wharf, filling.....	\$ 1,922.91	
Windmill Point wharf, culvert.....	2,553.65	
Harbour Railways, sidings, &c.....	16,248.82	
Dominion Coal wharf, Hochelaga.....	1,252.96	
Elevator No. 1, Marine Tower.....	99.27	
Steel Sheds—Wiring Shed No. 11.....	925.76	
Harbour boundaries.....	70.00	
	\$	23,073.37
Gilbert dredging plant.....		45,000.00

Total expenditure on Capital Account..... 2,400,455.05

EXPENDITURE ON MAINTENANCE ACCOUNT.

Harbour repairs and maintenance.....	\$ 45,166.49
Grain Elevator No. 1—maintenance and repairs.....	49,022.84
Floating Elevators—maintenance and repairs.....	20,651.57
Railway Maintenance and Traffic Dept.....	16,311.13
Harbour lighting.....	9,385.45
Floating Crane, operation and repairs.....	4,341.11
Sunken Dredge No. 1 (raising).....	3,314.30
Steel Sheds, maintenance and repairs.....	5,934.54
Harbour surveys and borings.....	2,024.60
Harbour expenses.....	583.79
Fire Tug Service (Tug St. Peter).....	1,500.00
Transporters, maintenance.....	87.40
Buoys and Beacons.....	255.67
Electric Hoist, King Edward Pier (operation).....	625.65
Electric Hoist, Sheds Nos. 11 & 12.....	1,191.09
Victoria Pier Footbridge, alterations.....	370.13

Total expenditure on Maintenance Account, &c..... \$ 160,765.76

Grand Total Expenditure by Engineering Department in 1911... \$2,561,220.81

GEORGE SMART, Accountant.

LIST OF HARBOUR COMMISSIONERS' DREDGING PLANT, 1912.

Description of Vessel.	HULL.			When Built.	ENGINES.				Capacity of Bucket.	Depth to which Dredge can work.	Remarks.
	Length.	Breadth.	Depth.		Kind of Engine	No. of Cylinders.	Dia. of Cylinders.	Length of Stroke.	Pressure of Steam.		
	Ft. In. over all.	Ft. In. Beam.	Ft. In. over all.				Inches.	Inches.	Lbs.	C yds.	
<i>Dredges.</i>											
Boom Spoon Dredge John Kennedy No. 4	90 0	36 0	10 3	1892	Horizontal noncondensing	2	16	18	128	7	Wooden hull.
" " No. 5	90 0	36 0	10 9	1900		2	16	18	140	7	Steel hull.
" " No. 5	104 0	36 0	10 9	1910		2	16	18	140	7	"
Elevator Dredge Premier.....	86 0	31 5	9 2	1905	Horizontal high pressure	2	14	15	.....	.....	Wooden hull.
<i>Derricks.</i>											
Clam Shell Derrick No. 1.....	76 0	27 6	8 0	1899		2	12	14	110	.....	"
" " No. 3.....	78 0	27 6	8 0	1900		2	12	14	110	.....	"
" " No. 4.....	75 0	26 10	7 6	1892	Horizontal non-condensing	2	12	14	110	.....	"
" " No. 5.....	75 0	26 10	7 6	1892		2	12	14	110	.....	"
" " No. 6.....	75 0	26 10	7 6	1892		2	12	14	110	.....	"
Drilling and Blasting Boat.....	80 0	27 0	5 6	1895		.....	.....	.....	100	.....	Three 5-in. steam drills.
Drill Boat F. G. No. 1.....	60 0	20 0	5 0	1909		.....	.....	.....	80	.....	Two 5-in. steam drills.
<i>Tug Boats.</i>											
Tug St. Peter.....	74 8	16 1	8 6	1875	Vertical noncondensing	1	20	22	125	.....	Wooden hull (rebuilt 1903)
" Courier.....	36 9	9 3	6 2	1900		1	10	12	125	.....	Composite hull.
" Aberdeen.....	79 3	18 3	9 0	1895		1	16	24	120	.....	Steel hull.
" Robt. Mackay.....	81 9	17 6	10 0	1899	Vertical condensing	1	32	24	125	.....	"
" Alphonse Racine.....	90 0	18 6	12 1	1905		1	16	24	150	.....	"
" No. 1.....	90 0	26 0	6 0	1893 Rebuilt	Horizontal noncondensing	1	15	20	100	.....	Iron, sheathed with elm; formerly floating elevator No. 1.
" Sir Hugh Allan.....	130 0	26 6	15 0	1911	Vertical triple expansion condensing	3	16 25 40	24	180	Steel hull, twin screws.

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Tug Hon. John Young.....	91 8	22 0	9 0	1911	Vertical compound condensing Vertical high pressure	2	12	18	140	"
" Beaver.....	64 3	15 3	7 3	1892		1	24	20	115	Wooden hull.
Testing Boat.....	{ 73 3	14 0	Over all	1897			18			{ Two wooden scows, braced 16 ft. apart.
	{ 73 3	14 0	3 1							
			3 1							
			3 1							
<i>Scows.</i>										
1 Flat deck Scow No. 17.....	75 0	20 2	6 0	1876	Capacity. 67½ cubic yds.					All wood.
1 " " No. 18.....	75 4	20 4	6 3	1876	67½ "					"
1 " " No. 19.....	75 6	20 3	6 5	1878	67½ "					"
1 " " No. 20.....	75 6	20 3	6 3	1878	67½ "					"
2 " " Nos. 21 and 22.....	85 0	25 0	7 5	1891	150 "					"
2 " " Nos. 23 and 24.....	85 0	25 0	6 9	1891	150 "					"
5 " " Nos. 25 to 29.....	85 0	25 0	6 9	1892	150 "					"
5 " " Nos. 31 to 35.....	85 0	25 0	6 9	1893	150 "					"
2 Dump Scows Nos. 36 to 37.....	106 0	26 10	9 6	1899	200 "					"
1 " " Scow No. 38.....	106 0	26 10	9 6	1900	200 "					"
2 Flat deck Scows Nos. 39 and 40.....	85 0	25 0	6 9	1903	150 "					"
2 " " Nos. 41 and 42.....	87 0	25 0	7 6	1904	150 "					"
3 " " Nos. 43 to 45.....	100 0	30 0	9 0	1911	200 "					"
2 Dump Scows (Gilberts').....	60 0	20 0	6 0	.....	100 "					"

GEORGE SMART.
Accountant.

APPENDIX No. 20.

QUEBEC HARBOUR COMMISSIONERS.

QUEBEC, January 31, 1912.

A. JOHNSTON, Esq.,
Deputy Minister,
Department of Marine and Fisheries,
Ottawa.

SIR,—I beg to send you, herewith, the annual report of the Quebec Harbour Commissioners, together with the statements of revenue and expenditure and assets and liabilities.

I have the honour to be, sir,
Your most obedient servant,

RAOUL RENAULT,
Secretary-Treasurer.

QUEBEC, January 3, 1912.

RAOUL RENAULT, Esq.,
Secretary-Treasurer,
Quebec Harbour Commissioners,
Quebec.

SIR,—I have the honour to submit the following with reference to the traffic of the St. Charles Docks and Wharfs, showing the number of vessels, their registerel tonnage, amount and description of cargo landed and shipped from the docks during season 1911:—

Inwards, 392 Vessels, 1,723,630 tons registered.

54,440 tons general cargo.
1,141 tons earthenware.
9,672 tons bricks.
6,818 tons salt.
5,182 tons molasses.
260 tons drain pipe.
556 tons cement.
106 tons mill stone.
2,630 tons slag.
1,058 tons whitening.
191,347 tons bituminous coal.
26,959 tons bituminous coal, ex. prop. and barges.
<hr/>
218,306
48,817 tons anthracite coal.

Outwards, 91 Vessels, 360,054 tons register.

29,942 tons general cargo.
1,025 tons asbestos.
3,641 tons wood pulp.
293 tons pulp board.
<hr/>
44,801
579 head cattle.
26,511 p.s. lumber and timber.

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Lower Port Steamers.

Landed..	2,908 tons general.
Shipped..	4,455 " "
	<hr/>
	7,463

Grain Landed by Propellers and Barges.

Oats..	584,302 bushels.
Wheat..	4,000 "
Corn..	190,781 "
Barley..	5,000 "
	<hr/>
Total..	784,083 "

Ties Landed by Schooner and Bateaux.

26,377 pcs. railway ties were landed.

Pulpwood Shipped by Barges.

14,832 cords of pulpwood was shipped.

The surface traffic has required the employment of 17,898 cars.

During the year spaces were rented at low rate for storage of coal landed, which had to be removed from water front.

There are wintering on Louise docks lumber, coal, railway ties, timber, &c., &c.

There are stored in the different freight sheds salt, cement, slag, wood pulp, &c., &c.

During the past season the different mail steamers landed:

First-class passengers..	10,375
Second-class passengers..	49,877
Third-class passengers..	112,566
	<hr/>
Total..	172,818

The second and thirdclass passengers were forwarded to their future homes by the different railway companies.

The Dominion Coal Company have 18,000 tons of coal stored on space rented to them.

The Nova Scotia Steel and Coal Company have 10,000 tons of coal stored on their space.

The docks are occupied during the winter months by a large number of vessels of various tonnages, where they find safe quarters until the opening of navigation.

I have the honour to be, sir,

Your most obedient servant,

(Signed)

P. FLYNN,
Wharfinger.

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QUEBEC, January 2, 1912.

RAOUL RENAULT, Esq.,
Secretary-Treasurer,
Quebec Harbour Commissioners,
Quebec.

SIR,—I have the honour to submit the following with reference to the harbour for the year 1911:—

Navigation was open in the harbour all winter.

C.G.S. *Montcalm* and *Lady Grey* were running to Cap Rouge all winter.

The ice bridge at Cap Rouge did not form as the C.G.S. *Lady Grey* and *Montcalm* were passing up and down during the winter.

C.G.S. *Montcalm*, Capt. Pelletier, left the harbour with passengers and freight at 5 a.m. on February 5 for Seven Islands and the Gulf of St. Lawrence, and returned on the 12th at 2.45 p.m.

C.G.S. *Lady Grey*, Capt. Mercier, left the harbour for Grosse Isle at 11 a.m., and returned at 4 p.m. on April 13.

The ice broke up in the tidal basin on April 9.

Schooner *Valeda*, Capt. Louis Dufour, under sail, arrived from lower St. Lawrence at 3 a.m. on April 9.

SS. *Aranmore*, Capt. John Hearn, left with passengers and freight for the lower St. Lawrence on April 9.

Navigation was general for schooners and other small craft from the lower St. Lawrence on April 11.

SS. *Savoy*, Capt. Pelletier, left the harbour with passengers and freight for the Island of Anticosti on April 15.

The ice bridge connecting the Island of Orleans with the mainland broke up on April 15.

The SS. *Aranmore*, Capt. John Hearn, arrived from the lower St. Lawrence with passengers and freight on April 17.

C.G.S. *Druid*, placing the buoys in the river on April 19.

The ice in the wet dock broke up on April 17.

C.G.S. *Montcalm*, Capt. Pelletier, left the harbour for the Gulf of St. Lawrence to meet incoming steamers on April 19.

The SS. *Savoy*, Capt. Pelletier, arrived from the Island of Anticosti with passengers and freight on April 22.

The ice in the St. Charles river broke up on April 22.

The C.G.S. *Alice*, Capt. Lavalle, left the harbour for Grosse Isle Quarantine Station on April 22.

The river ice between Quebec and Montreal passed down on April 26, at 8 a.m.

Steamers *Cascapedia*, *Amethyst* and *Lady of Gaspe* left for Montreal on April 26.

SS. *Royal George*, Capt. James Harrison, our first steamer from Europe with passengers and mails, arrived in the harbour on April 27.

Pontoons were placed in the harbour on April 27.

No ballast was discharged into the harbour during the past season.

The Richelieu & Ontario Navigation Company steamer *Murray Bay* arrived from Sorel on April 30.

The Richelieu & Ontario Navigation Company steamer *Murray Bay* arrived from Montreal on May 1, and returned to Montreal on May 2.

The Richelieu & Ontario Navigation Company steamer *Murray Bay* left the harbour with passengers and freight for the Saguenay on May 2.

In addition to the routine work of the harbour and office, 640 ocean going steamers were berthed in the Louise docks breakwater, and Point à Carey wharfs alone; this does not include a large number of steam barges, schooners, &c.

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H.M.C.S. *Niobe*, Commander Macdonald, arrived and anchored in the harbour on June 1.

H.M.C.S. *Niobe*, Commander Macdonald, arrived and anchored in the harbour on her second trip on July 13 and left on the 18th.

The German cruiser *Bremen*, arrived in the harbour on July 17, and proceeded to Montreal.

The Richelieu & Ontario Navigation Company steamer *Murray Bay*, made her last trip to the Saguenay with passengers and freight on November 22.

The Royal Mail Steamer SS. *Virginian*, Capt. Gambell, of the Allan Line, left the harbour with passengers and mails on November 25, for sea.

The last passenger and freight steamer, C.P.R. SS. *Montrose*, arrived in the harbour on November 20.

The last coal laden steamer from sea arrived in the Louise basin on November 28.

The steam barge *Carleton*, Capt. Ed. Proulx, entered the wet dock grain laden from the west on December 4.

SS. *Aranmore*, Capt. John Hearn, arrived from sea with passengers and freight on December 5.

SS. *Brayhead* left the Louise basin timber laden on December 8 for sea.

The pilot tender SS. *Eureka* arrived in the harbour from the Lower St. Lawrence on December 11.

Steam barge *Carleton*, Capt. Ed. Proulx, left the harbour with passengers and freight for the island of Anticosti on December 13.

SS. *Sinbad* arrived from Anticosti and Seven islands pulp laden on December 16.

Steam barge *Carleton*, Capt. Proulx, arrived in the harbour from Anticosti with passengers on December 22.

The ice in the wet dock formed on December 1 and after a spell of mild weather with rain broke up and formed again on December 23.

Owing to the long spell of mild weather the ice bridge between the island of Orleans had not formed up to January 2, 1912.

Notices have been placed in suitable localities warning parties from discharging rubbish of any kind in the river, and every precaution is being taken to prevent any violation of the regulations of the harbour commission in that respect.

I have the honour to be, sir,

Your obedient servant,

(Signed) JAS. C. SULLIVAN,
Harbour Master.

ENGINEER'S OFFICE,
HARBOUR COMMISSION,
QUEBEC, January 2, 1912.

RAOUL RENAULT, Esq.,

Secretary Treasurer, Harbour Commission,
Quebec.

SIR,—I have the honour to submit herewith the following, with reference to the various works in connection with the maintenance and improvement of the harbour accommodation, carried out by this department during the past year.

The contract for the construction of the Strauss Bascule railway bridge, referred to in the annual report for 1910, was awarded last January to the Dominion Bridge Company. The work of erection was begun on August 31, and is now completed with the exception of a small amount of rivetting; the laying down of the railway track, and the wiring for the light and operating electric current, still remain to be done, in order to complete the bridge ready for testing. The railway approaches to the bridge on both sides of the cross wall, have been laid down ready for connection with the

3 GEORGE V., A. 1913

bridge tracks, and a contract has been awarded to the Railway Signal Company of Canada, for the installing of semaphores and derails, interlocked with the bridge operating mechanism, for the protection of the bridge crossing. Some slight alterations had to be made to the landing sheds Nos. 13 and 9, to allow of the passage of the railway lines to bridge.

The filling of the Pier No. 1 having sufficiently advanced to allow its being done, a planked roadway was laid down along the centre of the pier, from the main roadway to the northern end of the pier, thus giving access to shed No. 25 and the coal platform at the northern end of the pier, for vehicles, independent of that through Shed No. 26.

Owing to the increase in the quantity of immigration baggage handled on the embankment, it was found necessary to increase the platform accommodation; this has been done by the erection of a second baggage platform, situated on the southern side of the baggage track.

The spaces on the shore side of the landing shed No. 24 and around the overhead corridor entrance, have been planked, and the berth thus provided in the tidal harbour, at the northern end of the breakwater, has been made use of by the Grand Trunk Railway ferry for the embarkation of immigrants.

Five floating fenders six feet in diameter, and one seven feet in diameter, were constructed during the past season, five of these fenders were placed along the river face of the breakwater, making altogether thirteen floating fenders in use during last season, on the river face of the breakwater and extension.

An additional hydrant has been placed on the breakwater, between the sheds Nos. 24 and 26, principally for the accommodation of vessels at this berth requiring city water.

The sixty pound rails, on the curves leading to Pier No. 1, have been replaced by ones of eighty pounds.

The car ferry landing on the breakwater has been removed, as it was found to be no longer required.

A coal storage space fronting on the wet dock, has been allotted to Messrs. Desjardins & Co., and an additional space made up of the ground formerly leased as a wood yard and that occupied by the coal oil shed, has been granted under lease to Messrs. Madden & Son.

To meet the requirements of vessels engaged in the coasting trade a pontoon 200 feet long by 40 feet wide has been constructed, and placed in the custom house pond, a berth on the west side of the pond having been prepared for its reception; two freight shelter sheds, fitted with electric lights have been erected on the pontoon; this berth was ready for use on September 1 last.

In preparation for the laying down of railway lines in connection with the car ferry berth, which it was contemplated to install at Atkinson's wharf, a portion of the slips at the east ends of St. Paul and St. James streets have been filled in; for retaining the filling in the St. Paul street slip, a cribwork wall has been placed across the slip.

Interlocking gates and semaphores have been installed at the railway crossing between the landing sheds Nos. 25 and 26.

The St. Lawrence Stevedoring Company have added 201 feet to the tracks for carrying the coal handling towers, making a total length of 981 feet of tracks along which the towers can operate.

One additional street arc lamp has been placed on the Point à Carcy wharf, at the slip leading down to the custom house pontoon.

The minor repairs required to maintain the East India, Wellington, Atkinson and Reynar wharfs, and buildings thereon, in serviceable condition, have been effected.

During the past season, forty-seven vessels have taken their drinking water supply from the Commissioners water main.

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The Cross-Wall draw bridge was operated for the first time the past season, on the 10th of April, and for the last time on December 7, on which day the S.S. *Carleton* left the basin.

The water was retained in the wet dock for the first time on May 4, and for the last time on December 3.

The entrance gates to the wet dock were not opened at the midday tide on September 2, the tide not having risen sufficiently for the purpose.

I have the honour to be, sir,

Your obedient servant,

(Signed) ST. GEO. BOSWELL,
Chief Engineer.

ASSETS AND LIABILITIES AS PER BALANCE SHEET.

ASSETS.

St. Charles' dock and wharfs.....	4,966,021 96
Wellington wharf.....	86,945 39
Grand Trunk wharf.....	17,110 71
Atkinson's wharf.....	55,451 50
East India wharf.....	49,553 12
Reynar's wharf.....	9,918 29
Grain elevator.....	41,887 35
Cash on hand.....	94 44
La Banque Nationale.....	329,889 15
<i>Beach and Deep Water Lots.</i>	
Capital at debit (sundries).....	31,801 92
Arrears of interest June 24, 1911.....	8,261 99
Arrears of interest Dec. 24, 1911.....	797 68

Unsettled Claims against the Dominion Government.

Dept. of the Interior.....	351,437 32
Dept. of Public Works.....	29,755 96
Dept. of Marine and Fisheries.....	314 25
Lifting barge.....	5,644 45
Graving dock revenue.....	4,550 54

Commissioners' dredge.....	5,105 21
Hopper barge.....	5,609 28
Material on hand.....	9,846 98
Office furniture.....	5,315 48
Tool's account.....	6,508 49
Jackcrews' account.....	394 87
Anchor's account.....	264 38
Pile driver.....	527 66
Deck scow.....	2,830 38

Rents, wharfage, etc.....	
Sundries as per balance sheet.....	16,542 00
Suspense account.....	2,805 78

6,045,192 53

LIABILITIES.

Quebec harbour debentures.....	3,612,802 42
Receiver general.....	43,380 00
Dominion Government securing dock walls.....	541,393 26
Quebec Harbour bonds, 62-63 Victoria chapter 34.....	350,000 00
Interest on January 1st.....	3,000 00
Quebec harbour bonds, 6-7 Edward VII, chapter 36.....	800,000 00
Beach and deep water lots.....	1,153,000 00
Profit and loss.....	54,523 73
	640,093 12

6,045,192 53

The arrears of interest due to or by the Dominion Government is not included in this statement.

Harbour Commissioners' Office,
Quebec, January 2, 1912.

RAOUL RENAUD,
Secretary-Treasurer.

SESSIONAL PAPER No. 21

we hereby certify that we have examined the statement of Assets and Liabilities of the Quebec Harbour Commissioners and we find the same in all particulars the true position of the trust to December 31, 1911, as per books and vouchers.

Quebec, January 19, 1912.

J. G. LAPOINTE, }
ARTHUR E. SCOTT, }
Auditors.

To office furniture.....	
Amount at debit grantees, beach and deep water lots.....	
Amount at debit sundries for rents, wharfage, etc.....	
Department of the Interior.....	
Department of Public Works.....	
Department of Marine and Fisheries.....	
St. Charles' docks and wharfs.....	
Wellington wharf.....	
Grand Trunk.....	
Grain elevator.....	
Atkinson's wharf.....	
East India wharf.....	
Reynar's wharf.....	
Jackscrew's account.....	
Anchor's account.....	
Lifting barge.....	
Graving dock revenue.....	
Hopper barge.....	
Pile driver.....	
Deck scow.....	
Steel rails.....	
Tool's account.....	
Commissioners' dredge.....	
Lumber account.....	
Railway ties.....	
Suspense account.....	
Cash on hand.....	94 44
La Banque Nationale.....	329,889 15
	<hr/>
	329,983 59

HARBOUR COMMISSIONERS' OFFICE,
January 2, 1912.

By Quebec harbour debentures.....	
Receiver general.....	3,612,802 42
Dominion Government securing dock wall.....	43,380 00
Quebec harbour bonds 62-63 Victoria, chapter 34.....	541,393 26
Interest due Jan. 1st.....	350,000 00
	<hr/>
	3,000 00
Quebec harbour bonds 6-7 Edward VII, Chapter 36.....	353,000 00
Beach and deep water lots.....	800,000 00
Profit and loss.....	54,523 73
	<hr/>
	640,093 12

6,045,192 53

RAOUL RENAUD,
Secretary-Treasurer.

6,045,192 53

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EXPENDITURE ON CAPITAL ACCOUNT DURING THE YEAR 1911.

Tool's account.....	157 43	
Office furniture.....	274 05	
		431 48
Securing dock walls:		
M. P. & J. T. Davis—		
Contract No. 1.....	2,415 52	
Contract No. 2.....	13,130 73	
		15,546 25
Grand Trunk wharf.....	1,370 45	
Atkinson's wharf.....	20 00	
East India wharf.....	656 48	
		2,046 93
Cross wall railway bridge.....		19,727 03
Custom House pontoon.....		33,945 63
Hearn property to perfect railway connections.....		51,315 20
Sundry expenditure on docks, wharfs and stores.....		26,644 30
		149,656 82

COMPARATIVE STATEMENT OF THE QUEBEC HARBOUR COMMISSIONERS FOR THE YEARS 1910 AND 1911.

	1910.	1911.	Difference in 1911.
Tonnage dues.....	8,593 47	13,314 71	4,721 24 Increase.
Import dues.....	5,430 43	5,801 53	71 10 Increase.
Export dues.....	2,439 50	2,145 10	294 40 Decrease.
Harbour dues.....	3,712 88	3,787 24	74 36 Increase.
Earnings of docks, wharf and storess.....	95,344 62	93,604 88	1,739 74 Decrease.
Beach and deep water lots.....	1,157 03	1,725 37	568 34 Increase.
Interest.....	4,347 91	2,016 98	2,330 99 Decrease.
Sundries.....	11 00	30 00	19 00 Increase.
	121,036 84	122,425 81	1,388 97 Increase.

SESSIONAL PAPER No. 21

REVENUE AND EXPENDITURE.

1911
Dec. 31

To Tonnage dues.....	\$13,314 71
Import dues.....	5,801 53
Export dues.....	2,145 10
Harbour dues.....	3,787 24
	<hr/>
	\$925,048 58

WHARF AND PROPERTY EARNINGS.

Wellington wharf.....	\$2,610 00
Grand Trunk wharf.....	2,000 00
Atkinson's wharf.....	2,820 00
East India wharf.....	1,435 85
Reynar's wharf.....	1,200 00
Louise docks and wharfs.....	83,539 03
	<hr/>
	\$93,604 88

Beach and deep water lots.....	1,725 37
Interest.....	2,016 98
Sundries.....	30 00
	<hr/>
	\$122,425 81

To the Chairman and Commissioners,
Quebec Harbour Commissioners,
Quebec.

DEAR SIRS,—We beg to report that we have examined the books and vouchers of the Commission and find them correct and in accordance with balance sheet presented, which is a true position of the corporation as at December 31, 1911.

We have to thank Mr. Renault, Secretary-treasurer, for assisting us in our work in every manner in his power.

We have the honour to be, sirs,
Your obedient servant,

J. G. LAPOINTE,
ARTHUR E. SCOTT,
Auditors.

QUEBEC, January 19, 1912.

By Administrative engineering Staff, salaries and fees.....	\$16,532 04
Legal expenditure.....	2,668 50
Notarial expenditure.....	167 25
Miscellaneous expenses, printing, stationery, advertising, Harbour Master's service, general labor, &c.....	4,508 01
Property expenditure, taxes, insurance, repairs, &c., and the maintenance of docks, wharf and stores.....	52,970 67
Workmen's liability.....	81 02
Twelve months' interest on Bonds, 62-63 Victoria, Chapter 34, and 6-7 Edward VII, Chapter 36.....	30,000 00
Surplus over the working expenses.....	15,498 32
	<hr/>
	\$122,425 81

APPENDIX No. 21.

THREE RIVERS HARBOUR COMMISSIONER'S REPORT.

Commissioners:

P. A. DROLET, Esq., Chairman.

JOS. L. FORTIN, Esq.,

L. E. DUFRESNE, Esq.,

L. P. NORMAND, Esq.,

J. F. BOULAIS, Esq.

GEORGES BALGER, Secretary-Treasurer.

Notwithstanding the political excitement of last summer, which absorbed to the utmost, and this for months and months the attention of the entire community and affected more or less some of our larger industries—the season 1911 ended with a highly satisfactory result. Not that under prevailing circumstances several of our enterprises and projects had not suffered a momentary drawback, or an interruption—as for instance the construction of the Wayagamack Pulp and Paper plant, which, for lack of sufficient labour, particularly during election time, could not proceed with the desired rapidity; and the forced postponement of the erection of an additional cotton plant in our city for the same reason. But the crisis resulting from the abnormal condition recently imposed by the exclusive absorption of, so to say, *the Entire Export Trade* of the Dominion by the port of Montreal, reducing our ocean traffic not only to a minimum, but continued forcing most of the products of our own industries, our agricultural and dairy products to be still transported by rail to that city for transshipment to foreign markets—this crisis, fortunately, has lost part of its violence, in so far at least as the development of our local traffic, the steadily increasing forward movement in every branch of manufacture of the various industrial establishments in and around Three Rivers, to some extent, for the loss inflicted by the rather too partial dealing of our governing powers in favour of *but one single port on the St. Lawrence*.

Under actual conditions of transportation, the export of most of our manufacture for countries, other than the United States, are generally shipped in fractional quantities, following each other in rapid succession. They may, consequently, not always offers an inducement for steamers taking them from over our wharfs. Could, once, the different firms, joining their interests agree to ship at regular fixed dates, a change for the better would, undoubtedly, follow. The same drawback existed in the imports of raw material and products for manufacturing purpose:—sulphur, clay, chemicals, &c., each firm requiring but a limited quantity. With an increasing number of establishments in this section of the province, the supply is now centered in Three Rivers and sent from here to various destinations. The demand for coal is constantly on the increase. Notwithstanding the number of plants now running by electricity, the 120,000 tons of coal imported last season are not nearly sufficient to meet all requirements. The new coal dock under construction at the Windmill point, calculated to offer the required space for handling larger quantities, is badly needed by the Dominion Coal Company as well as by other firms. The first named, alone, could easily double their import, particularly, in prevision of the not far-distant entrance into our city of the Canadian Great Northern railroad and the prospect of having a branch of the Grand Trunk Pacific railroad soon joining our deep water wharfs. Not one single ton of the coal now received is yet delivered on the south shore.

SESSIONAL PAPER No. 21

In looking over our report for 1910, we have nothing to withdraw from our statement regarding the wonderful progress and the yet more brilliant prospects in view for the city and for this section of the country. Relying on the promise of the present honourable the Minister of Marine to not only supply all and every want of the great national port of Montreal, but also to render equal justice to every other port,—the welfare of our harbour will be secured.

Trusting that his colleague the Honourable Minister of Railways will also consider the necessity of linking together the main line of the Grand Trunk Pacific—distant only some 35 miles—with the harbour of Three Rivers, from which place by a simple car ferry to Doucet's Landing, direct connection by the Grand Trunk system can be established between the north of this province and the eastern portion of the United States, at a relatively small cost, by a route considerably shorter than via Quebec or Montreal—and the future of our city and traffic would be well cared for.

In support of our views let us again allude to the surprising development of the Laurentide Paper Company's interest:—within the last twelve months the shareholders, without disbursing one cent, doubled their capital and the new stock is still far above par. Then the gigantic undertaking of the Shawinigan Water and Power Company; and above all, the astonishing increase in the development of our forest. Until now the cutting of five million logs in the St. Maurice territory was regarded as a maximum, not easily surpassed. To-day the record is broken, for the present winter's cut will reach about eight million logs. Further addition to the Grand Mère plant, larger consumption by the Belgo-Canadian Co., and more particularly the entering into the field of action of the new Wayagamack Pulp and Paper Co.—are the principal factors of the present phenomenal extension.

Of the fifty million feet of merchantable lumber produced by our local sawmills, about fourteen million were shipped to Great Britain, ten million to United States and the rest for local consumption and the more important Montreal market. The same establishments also turned out 70,000 cords of pulpwood, of which about 50,000 left for the United States by canal boats or steamboats. The Wayagamack Co. kept their portion, some 10,000 cords for the manufacture of paper as soon as their plant commences operation (end of February or March). Some 20,000 tons of pulp, half of which from the Seven Islands, below Quebec, the balance from the Grès Falls Pulp Mill at the Cap de la Madeleine, were shipped to United States paper mills.

In spite of the great demand and enormous consumption by our own paper mills, in spite of the law of Quebec, the export to the United States of pulpwood from the district of Three Rivers alone could thus not have fallen short of one hundred thousand cords, during the season 1911.

According to annexed statements, ocean vessels registered during the season 1911 to the number of 59 steamships with 124,583 tons, 6 steamships and 11,273 tons more than in 1910, and 29 steamships and 68,000 tons more than in 1907, the year of the unfortunate crisis mentioned.

The traffic with the United States required 924 canal boats with 106,040 tons, an increase of 152 vessels over 1910.

Along with the local traffic, the total arrivals numbered thus 1,494 vessels and 328,203 tons, quite a satisfactory result.

GEORGES BALCER,
Secretary-Treasurer

THREE RIVERS, January 15, 1912.

3 GEORGE V., A. 1913

STATEMENT of Number and Tonnage of Steamers and other Vessels entered inward and outward of the port and out-ports of Three Rivers, for the year 1911.

OCEAN. TRAFFIC.—PORT OF THREE RIVERS.

RETURN OF VESSELS INWARD.			RETURN OF VESSELS OUTWARD.		
Nationality.	No.	Tons.	Cleared for	No.	Tons.
British.....	34	81,639	Inland Ports.....	43	85,109
Norwegian.....	22	39,578	Great Britain.....	14	35,517
Danish.....	2	2,676	Cuba.....	2	3,957
Canadian.....	1	690			
	59	124,583		59	124,583

UNITED STATES TRAFFIC.

Port of Three Rivers, United States steam barges.....	4	3,677
“ “ “ “ “ “ canal-boats.....	806	81,794
“ “ “ “ “ “ steamers.....	9	9,499
Out-ports “ “ “ “ canal-boats.....	105	11,070
	924	106,040

INLAND TRAFFIC.

Boats not registered.....	21	
Schooners and Barges.....	256	62,047
Tugs and steamboats.....	234	35,533
	511	97,580

RECAPITULATION.

Ocean traffic.....	59	124,583
United States traffic.....	924	106,040
Inland traffic.....	511	97,580
Grand Total.....	1,494	328,203

Exclusive of Richelieu & Ontario and other Navigation Coy's Steamers, local craft and market boats.

SESSIONAL PAPER No. 21

HARBOUR COMMISSIONERS OF THREE RIVERS.

Receipts and Disbursements for the Year 1911.

RECEIPTS.

COMMISSIONERS' OFFICE.

Tonnage dues.....	\$ 556 10
Harbour dues: Inward.....	147 61
Outwards.....	1,738 61
Commutation.....	795 00
Rent of wharves and moorage.....	757 29
	<u>\$ 4,994 61</u>

CUSTOM HOUSE.

Tonnage dues on vessels.....	\$ 3,881 00
Harbour dues: Inwards.....	9,439 28
Outwards.....	2,117 82
Moorage dues.....	1,041 71
	<u>\$ 16,979 81</u>

Total receipts.....	\$21,974 42
Interest on deposits.....	175 29
Deposit in bank and cash, Dec. 31, 1910.....	13,519 56
Accounts of 1910 collected in Jan. 1911.....	287 29
Grand total.....	<u>\$35,956 56</u>

THREE RIVERS, January 15, 1912.

DISBURSEMENTS.

EXPENSES ON REVENUE.

Current expenses.....	\$ 347 01
Salaries and commission.....	3,647 02
Printing and stationery.....	64 71
Repairs and general harbour expenses.....	9,525 00
Interest on debentures.....	1,905 00
Sinking fund.....	<u>11,430 00</u>
Total expenses on revenue.....	<u>17,763 14</u>

Deposits in bank and cash Dec 31, 1911.....	18,193 42
Grand Total.....	<u>\$35,956 56</u>

GEORGES BALCER,

Secretary-Treasurer.

APPENDIX No. 22

SIXTY-FIRST ANNUAL REPORT OF TORONTO HARBOUR COMMISSIONERS, BEING FOR THE YEAR ENDING DECEMBER 31, 1911.

To the Commissioners of the Harbour of Toronto:—

GENTLEMEN,—I have the honour to submit my report for the year 1911.

The harbour was clear of ice on March 31, having been frozen over for 111 days, a longer period than usual.

The first vessel to arrive was *The Macassa*, Captain Henderson, on March 30. The last arrival was *The Seguin*, on December 8, she came in light to winter here.

The number of vessels to arrive this year is 3,192. A slight falling off from last year, but the tonnage is a little in advance, showing that larger vessels are being employed than formerly.

Below is a comparative statement of arrivals and tonnage:—

REGISTERED TONNAGE.

	1910	1911	Decrease.	REGISTERED TONNAGE	
				1910	1911
Propellers.....	729	711	18	360,386	381,531
Steamers.....	2,262	2,070	192	1,170,650	1,213,778
Sailing.....	411	411	....	51,925	54,578
	3,402	3,192	210	1,582,961	1,649,887

The year commenced with a cash balance of..\$ 5,321 15

Receipts for the year.. 11,659 07

—————\$16,980 22

Expenditure for the year.. \$13,380 86

Cash on hand, in bank and till.. 3,599 36

—————\$16,980 22

Coal receipts for the year are as follows:—

	Tons.
Hard coal..	110,306
Bituminous coal..	15,923

Total.. 126,229

Being 1,695 less than for last year.

Coal imported by rail as per returns from Ottawa are as follows:—

	Tons.
Hard coal..	632,974
Bituminous coal..	734,978

Total.. 1,367,952

SESSIONAL PAPER No. 21

It will be noticed that the quantity of coal brought into the city by vessel is but a tenth of that conveyed by rail, and, as stated in my report for last year, this reduction must be more and more noticeable year by year, for as the city extends towards the north and west the railways can deliver coal almost at the consumers' doors, while the vessel trade is handicapped by the long haul from the water front.

The lake level has been very low this year, involving a considerable increase of dredging. The highest water was 7 inches above zero on June 8; the lowest water was 13 inches below zero on November 12. The average for the year is two inches and one-third below zero, or about ten inches below last year.

The harbour buoys were placed out on April 3, and then taken up on December 7.

The lamps at the Queen's wharf were first lighted on March 30, and discontinued on December 8.

There are 75 vessels wintering here, besides several dredges, scows, viz.: 10 passenger steamers, 9 steam barges, 3 schooners, 4 tow barges, 11 ferry steamers, 2 house boats, and about 26 sailing yachts, in all about 21,827 tons register.

An Act entitled an Act to Amend and Consolidate the Acts Relating to the Harbour of Toronto, was passed by the Senate on March 31, 1911, and amended and passed by committee of the House of Commons and assented to on May 19, same year. By this Act the commissioners of the trust are elected and appointed for three years, instead of for one year, as formerly; the area of their jurisdiction is considerably enlarged and their powers increased.

In June the twenty-one year lease to the Canadian Pacific Railway company expired. Application by the company for a renewal of the lease was made, but pending alterations in the arrangement, the new lease has not yet been granted. This is for what is known as Queen's wharf property.

Dredging has been done at the following docks and slips, viz.:—

	Cub. Yds.
At Princess street.	11,583
At Church street.	6,665
At Parliament street.	279
At Elias Rogers' dock.	4,045
At Conger Coal Co.'s dock.	1,786
At Milne & Co.'s dock.	1,786
At the Merchants' line dock.	1,084
At the Electric Light Co.'s.	4,701
At the Canadian Lake line.	1,615
In the Queen's Wharf channel.	4,518
	<hr/>
	38,062

TORONTO HARBOUR.

SECRETARY of the Harbour Trust in account with the Commissioners for the Year ending December 31, 1911.

GENERAL BALANCE SHEET.

Wharf property.....	\$ 43,073 72	By balance to credit of profit and loss.....	\$ 76,294 27
Office furniture.....	353 88		
Canada permanent Bonds.....	14,000 00		
City of Toronto Bond.....	5,000 00		
Central Canada Bond.....	5,000 00		
Imperial Trust Co.....	5,167 31		
Cash in Bank of Toronto; deposit.....	3,691 32		
Cash in hand.....	8 04		
	<u>\$ 76,294 27</u>		<u>\$ 76,294 27</u>

We have examined the Books and Vouchers and have compared the Balance Sheet with the said Books and Vouchers, and certify the same to be correct and to represent a true statement of the affairs of the Trust at this date: December 31, 1911.

LIONELE H. CLARK, Chairman.

R. S. GOURLAY,

H. HOLMES SMITH..

F. S. SPENCE.

T. L. CHURCH.

Commissioners.

S. BRUCE HARMAN,
SYDNEY H. JONES. } Auditors.

PROFIT AND LOSS.

Dr.

Dredging.....	\$ 7,780 76	Balance from ledger.....	\$ 77,788 75
Salaries.....	2,540 00	Canadian Pacific Railway Co.....	2,000 00
Office expenses and rent.....	302 28	City of Toronto; rent.....	1,000 00
Lights, buoys and beacons.....	823 92	Interest on deposits.....	127 38
Charges, commission, fees, &c.....	480 00	Interest on Bonds.....	1,009 58
General repair account.....	289 70	City allowance on account care of city buoys.....	100 00
Commission's Expenses in England.....	150 00	Money refund account charges.....	22 00
Cost of valuation.....	100 00	Harbour dues.....	7,567 42
Deputation to Ottawa.....	61 90		
Printing and stationery.....	45 85		
Refund of harbour dues.....	43 30		
Written off furniture account.....	40 00		
Insurance.....	26 25		
Lunch for commissioners.....	28 90		
Premium of Fidelity bond.....	8 00		
Balance to credit of Profit and Loss.....	76,294 27		
	<u>\$ 89,615 13</u>		<u>\$ 89,615 13</u>

Audited and found correct.

S. BRUCE HARMAN,
SYDNEY H. JONES. } Auditors.

COMPARATIVE STATEMENT.

Goods arrived at the Port of Toronto during the years 1910 and 1911.

Description of Goods.	1910	1911
General merchandise.....tons	81,883	83,279
Coal....."	127,916	126,229
Horses, carriages and horned cattle.....	259	323
Lumber.....ft. B.M.	.....	1,037,000
Grain.....bush.	1,230	1,500
Bricks.....common	.....	2,560,000
".....scoria	313,000	368,000
Ice.....tons	8,416	7,898
Fruit.....bbls.	210	184
".....crates	10,997	9,680
".....baskets	16,257	493,471
Lake stone.....toise	11,361	12,038
Oil in bulk.....bbls.	103,525	101,898

The contractor for the dredging was Mr. John E. Russell, who gave every satisfaction, doing the work smartly and cleanly.

Mr. J. G. Sing, engineer-in-charge, Public Works Department, reports as follows:—

During the past year a channel has been dredged through the bar, 200 feet in width on top by about 600 feet in length at the entrance to the eastern channel, to the depth of 20 feet below zero on gauge. Concrete superstructure has been placed on the north end of the east pier of the eastern channel for a length of 650 feet, and a small boat-landing was constructed near the centre thereof.

The work of construction of the western entrance to the harbour has been practically completed, and consists of a channel through the sand bar to a depth of 18 feet below zero of gauge and a width of 400 feet between the piers. The north pier is 2,200 feet in length by 20 feet in width composed of crib work substructure and concrete superstructure. The magnetic bearing of the new western channel is north 61° 45' east, and the magnetic bearing of the eastern channel is north 34° 45'.

Mr. R. F. Stupart, director of the Toronto Observatory, reports as follows:—

The first warning of the season was issued for the Port of Toronto on May 31, and the last on December 3. Warnings were issued for Lake Ontario ports on sixteen occasions, there being no less than five sent out in October and six in November. On each occasion when the signals were displayed a storm occurred. October was fairly stormy; November especially so, but the remaining months during the season of navigation were marked by an absence of any very stormy conditions.

During the year the self-recording wind gauge placed at the Eastern Gap, in charge of Mr. McKelvie, gave a total mileage of 109,719 miles in the twelve months; the months giving the greater being February, 11,507 miles; November, 11,991 miles, and December, 11,247 miles. The months with the smallest mileage were July, 6,545 miles, and August, 6,515 miles.

The precipitation for the year was: Rain, 23.91 inches; snow reduced to water, 5.26 inches; total, 29.17 inches, or four and one-half less than last year.

I am, gentlemen,

Your obedient servant,

COLIN W. POSTLEWAITH,

Harbour Master.

SESSIONAL PAPER No. 21

COMPARATIVE STATEMENT.
RECEIPTS AND EXPENSES FOR THE YEARS 1909-10-11.

RECEIPTS.		EXPENDITURE.			
		1909	1910	1911	
Canadian Pacific Railway.....	\$ 4,000 00	\$ 6,308 57	\$ 7,951 40	\$ 7,780 76	
City of Toronto.....	2,000 00	55 25	17 35	61 90	
Harbour dues.....	6,446 21	17 50	33 40	26 25	
Interest of Bonds.....	731 32	300 00	550 00	480 00	
Interest on deposits.....	317 00	528 41	1,045 04	823 92	
Water Works department.....	100 00	220 34	1,430 82	289 70	
Fines, speed by-law.....	40 00	63 62	92 50	45 85	
Insurance.....	.....	713 90	742 00	902 28	
Refund.....	.....	2,540 00	2,540 00	2,540 00	
		\$ 10,747 59	\$ 13,402 51	\$ 12,950 66	
	\$ 13,634 53	\$ 14,891 71	\$ 11,826 38		

APPENDIX No. 23.

PICTOU HARBOUR COMMISSION.

PICTOU, N.S., April 3, 1912.

ALEX. JOHNSTON, Esq.,
Deputy Minister Marine and Fisheries,
Ottawa.

SIR,—Enclosed you will find account of the Pictou Harbour Commissioners for the year 1911, and also a copy of the collector's account of dues collected. Delay in forwarding these accounts at an early date was due to the absence of the secretary.

Yours faithfully,

HENRY G. IVES,
Secretary Pictou Harbour Commission.

STATEMENT of Harbour Dues for year ending December 31, 1911.

Balance in bank December 31, 1910.. . . .	\$125 00
Total collections for the year 1911.. . . .	692 48
Total.. . . .	<hr/> \$817 48

Disbursements.

Paid salary of harbour master for year 1911.. . . .	\$300 00
To credit of harbour commissioners.. . . .	392 48
Balance on hand December 31, 1911.. . . .	125 00
Total.. . . .	<hr/> \$817 48

R. P. FRASER,
Collector of Customs.

PICTOU, N.S., January 31, 1912.

SESSIONAL PAPER No. 21

The Pictou Harbour Commissioners—In account with Henry G. Ives, Secretary.

1911.			\$	cts	\$	cts
Jan.	16	To Commissioners' expenses.....	10	00		
"	16	SS. <i>Hiawatha</i>	15	00		
May	4	Secretary's salary.....	100	00		
"	4	J. T. MacKay, repairing buoys.....	11	00		
"	4	Wm. McLean, bushing channel to East River.....	12	00		
"	10	Placing buoys.....	30	00		
"	29	Painting buoys.....	5	00		
June	9	Bushing, West River.....	8	00		
"	27	Repairs, Trenton Wharf.....	153	63		
Aug.	12	Material, Market Wharf.....	79	50		
Sept.	2	Labor, Market Wharf.....	28	13		
Oct.	6	W. B. Graham, bushing East River.....	25	00		
"	6	Higginson & McKay, chains for buoy.....	13	00		
"	6	Taking in buoys.....	30	00		
"	6	Keeping bushes in order, 1911.....	6	00		
1912.						
Jan.	12	Balance in Bank of Nova Scotia.....	775	97		
						1,302 23
1911.						
Jan.	1	By balance in Bank of Nova Scotia per Acct.....	909	75		
"	12	Deposited by Collectors.....	392	48		
						1,302 23
1912.						
Jan.	12	By balance in Bank of Nova Scotia.....	775	97		

JAS. R. BROWN, Chairman.

HENRY G. IVES, Secretary.

D. A. BARR,

W. A. MCINTOSH,

J. C. REID,

Pictou Harbour Commissioners.

APPENDIX No. 24.

NORTH SYDNEY HARBOUR COMMISSIONERS.

NORTH SYDNEY, N.S., June 10, 1912.

A. JOHNSTON, Esq.,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to enclose a report of the transactions of the Harbour Commissioners of North Sydney, N.S., for the year ending December 31, 1911.

A new harbour commission composed of Messrs. James Bissett, Arthur McDermaid and Kenneth Macleod, was appointed by order in council, on May 13 last and I received from the late Board of Harbour Commissioners:—

- One deed of ballast ground property,
- One deed of breakwater property.
- One deed of Bertram property; right of way to ballast ground,
- Release of mortgage from Nova Scotia Building Society,
- One tin box of papers and documents,
- One shipping register book,
- Statement of receipts and expenditures to June, 1912, showing balance on hand, \$1,577.04,
- One Royal Bank book, showing said balance, \$1,577.04.

(Sgd.) KENNETH MACLEOD,
Secretary.

HARBOUR Commissioners' Statement of Receipts and Expenditures to June, 1912.

					\$	cts.	\$	cts.
Jan.	1	Amount on hand.....			3,266	88		
May	31	Received Harbour Dues			711	59		
June	30	" " " "			517	40		
July	31	" " " "			443	94		
Aug.	31	" " " "			401	15		
Sept.	30	" " " "			428	75		
Oct.	31	" " " "			511	98		
Nov.	30	" " " "			566	29		
Dec.	31	" " " "			353	30		
							7,201	28

June	Amount on hand.....	1,577 04
------	---------------------	----------

			\$	cts.
1911.				
Feb.	18	Paid G. P. Moffatt, account contract.....	20	00
Mar.	14	G. P. Moffatt, balance contract.....	65	00
"	25	T. W. Lawlor, trucking.....	3	90
"	25	G. P. Moffatt, piling wharf.....	24	00
May	5	Repairing harbour boat.....	13	85
"	17	Bent & Cohoon.....	6	24
July	14	George Coleman.....	0	75
"	31	S. Salter.....	1	74
Sept.	7	Mr. Bond.....	4	50
Nov.	2	Schr. Arizona.....	20	00
"	20	H. Bond.....	7	50
Dec.	2	Labour, breakwater.....	37	00
"	9	" ".....	35	00
"	16	" ".....	61	00
"	23	" ".....	58	00
"	23	T. Lawlor, hauling logs.....	37	12
"	28	P. J. McDonald, iron work for breakwater.....	23	52
"	28	North Sydney Tow Boat Co.....	10	00
"	30	Labour breakwater and horse hire.....	20	75
"	30	" " " ".....	91	25
		Bent & Cohoon.....	5	71
		Rent.....	75	00
		J. McPherson.....	196	72
		P. J. McDonald.....	550	00
		M. W. Lawlor.....	550	00
		Joseph Shean.....	700	00
		Wm. Hackett.....	650	00
		Nova Scotia Building Society.....	302	88
1912.				
Feb.	3	Labour, breakwater.....	46	25
"	10	Iron bolts.....	4	74
"	28	Labour, breakwater.....	11	25
April	3	Nova Scotia Building Society.....	705	73
"	22	G. P. Moffatt, repairing boat.....	17	71
		J. Shean, account telegrams and moving logs.....	4	63
		P. J. McDonald.....	275	00
		M. W. Lawlor.....	275	00
		Joseph Shean.....	350	00
		Wm. Hackett.....	325	00
		Rent.....	37	50
		Amount on hand.....	1,577	04
			7,201	22

3 GEORGE V., A. 1913

LIST OF SHIPPING, REGISTERED TONNAGE, AND NUMBER OF MEN CARRIED ARRIVING AT THE PORTS OF THE SYDNEYS DURING 1911, FROM JANUARY 1 UNTIL DECEMBER 31.

This includes all British and foreign steamers from foreign ports, all British and foreign steamers engaged in the coal and coastwise trades, and sailing vessels of all descriptions, including Canadian, and all foreign vessels. Total vessels, 2,220, having a tonnage of 1,811,223, carrying crews of 38,181 men.

	No.	Tonnage.
Ocean steamers.....	994	1,679,780
Coasting steamers.....	167	51,617
Steam trawlers.....	39	4,926
Schooners.....	1,004	72,242
Barkentines.....	6	1,182
Brigantines.....	10	1,476
	2,220	1,811,223

SHIPMENTS.

	Tons.
Dominion Coal Co., Ltd., from their pier, Sydney, coal shipped.....	1,920,862
Nova Scotia Steel & Coal Co., Ltd., North Sydney, coal shipped.....	471,043
Nova Scotia Steel & Coal Co., Ltd., North Sydney, iron ore received.....	147,012
Dominion Iron & Steel Co., Ltd., iron ore, limestone and other material received.....	905,231
Dominion Iron & Steel Co., Ltd., steel rails shipped.....	73,085

(From January 1st, 1911, to December 31st, 1911.)

WM. HACKETT,
Secretary.

APPENDIX No. 25.

BELLEVILLE HARBOUR COMMISSIONERS.

BELLEVILLE, ONT., December 18, 1911.

Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—Enclosed I mail you statement of the harbour master for 1911, and also of the harbour commissioners for the same year.

I am to-day handing over to your appointees, the books, papers and bank-books, and trust their stewardship will be as beneficial to the interests concerned as those of the deposed commissioners.

I am, very truly yours,

DAVID PRICE.

Balance to credit in bank-book.	\$ 138 72
Balance to credit in sinking fund.	3,389 26
	<hr/>
Total in bank.	\$3,527 98

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APPENDIX No. 26.

REPORT OF THE PORT WARDEN OF THE PORT OF ANNAPOLIS ROYAL,
N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

ANNAPOLIS ROYAL, December 20, 1911.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries.

SIR,—I beg to submit my annual report as port warden for the year ending December 31, 1911.

On April 4, I held a survey on the SS. *Granville* while lying at Whitman's wharf, in consequence of damage caused by fire. I received a fee of \$8.

On September 22, I held a survey and inspection of the SS. *Hispania*, loading at the Acadian pier, and pronounced her seaworthy. I received the fee of \$10 for this inspection.

I have no expenses to report.

I am, sir,

Your obedient servant,

(Signed) JOSEPH MALENSON,

Port Warden.

APPENDIX No. 27.

REPORT OF THE LATE PORT WARDEN OF THE PORT OF CHATHAM,
N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

CHATHAM, N.B., December 29, 1911.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries.

SIR,—I beg to enclose a report compiled from records of the late George T. Tait, port warden, who died on the morning of December 25, 1911.

Yours truly,

MAGGIE TAIT.

P.S.—The present port warden is M. M. E. Goggin, appointed March 25, 1912.

PORT OF CHATHAM.

Having examined the schooner *Mary Hendry*, of the burden of two hundred and forty-nine tons or thereabouts of Bridgetown, Barbadoes, now lying in this port with reference to the damage caused to her in this port on the twenty-ninth day of August last by being collided with by the steamship *Appenine*, we recommended that temporary repairs be made on said schooner to enable her to load and proceed on her intended voyage, and at the request of Captain Edgar Godfrey, master of the said schooner, *Mary Hendry*, we the undersigned George T. Tait, port warden of the port of Chatham, Robert J. Walls, harbour master of the port of Chatham, and Robert Murray, Lloyds' agent at Chatham aforesaid, proceeded on board the said schooner this day and made a thorough examination of the condition of the said vessel.

We found that temporary repairs had been made as instructed and that calkers had gone over all the hull above water line, calking all seams or bad butts in hull. We also found the main deck newly calked.

From such examination we are quite satisfied with such repairs and hereby certify that the vessel is seaworthy to carry a cargo of lumber from this port to New York and return with cargo to Nova Scotia for permanent repairs at Liverpool, N.S.

Fees collected, \$15.

Dated at Chatham, N.B., this eighth day of September, A.D. 1911.

We, the undersigned George T. Tait, port warden of the port of Chatham, Robert J. Walls, harbour master of the port of Chatham, and Captain Ernest Wells, master of the steamship *Amherst*, now lying in the port of Chatham, do hereby certify that at the request of Mr. Robert Murray, Lloyds' agent at Chatham, N.B., we proceeded on board the schooner *Mary Hendry*, of Liverpool, N.S., of the burden of two hundred and forty-nine tons or thereabouts, and held a survey on the said schooner as she now lies at Snowball's wharf in the said port of Chatham.

Captain Godfrey informed us that on the twenty-ninth day of August instant, the steamship *Appenine*, while docking came in collision with his vessel while lying at the J. B. Snowball Company wharf.

On examination, we found the said schooner badly strained, rail broken, water ways strained for twenty feet along starboard side and butts opened in hull and deck, also the ceiling broken from deck down to bilge strake, bilge strake also broken,

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break deck also broken, channels on port side broken, copper torn off and planking damaged on starboard side. So far as we can see in the condition in which said vessel now is and to the best of our knowledge and belief we estimated it will cost eight hundred dollars (\$800) to repair the damages.

Fees paid, \$15.

Dated at Chatham, N.B., this thirtieth day of August, A.D. 1911.

PORT OF CHATHAM, August 19, 1911.

At the request of Captain Olaf Schervig, of the Norwegian steamer *Starkad*, of Christiana, 1,492 tons register, and by order of the Norwegian consul, we the undersigned George T. Tait, port warden, Robert J. Walls, harbour master, and Captain Martin Handeland, master of the Norwegian steamship *Lovstakken*, of Bergen, proceeded to Nordin, to hold a survey of said steamer.

The captain informed us that the steamer had been aground several times in the Richibucto river, then he got a gasoline boat to steady steamer along and got clear (for further particulars see ship's logbook).

We found the steamer not making any water, and in good seaworthy condition. We recommend that the steamer be dry-docked at a favourable opportunity. The fees for this survey, including transportation to and from steamer are twenty dollars each, receipt of which is hereby acknowledged.

CHATHAM, August 14, 1911.

At the request of Captain Conrad Jacobsen, of the Norwegian barque *Silas*, of Grimstad, lumber laden, bound to Maryport, England, we the undersigned George T. Tait, port warden, R. J. Walls, harbour master, and Captain James Willis, master Br. SS. *Longscar*, being appointed by the Norwegian vice-consul to hold a survey on the said barque, proceeded on board the said barque, the captain informed us that in moving the ship from loading berth to stream on the ninth inst., the ship grounded on the flats on the north side of the river, where she lay aground for ten hours, after that time he got her afloat with the assistance of two tugboats. In getting the ship off several lines were broken (for particulars refer to ship's log). As the bed of the river is quite soft where she grounded, she cannot have sustained serious damage in our opinion, we sounded pumps and found ship not making any water.

We consider in our opinion that the ship is in every way seaworthy to proceed to her destination, but we would recommend that she be dry-docked at the first opportunity following completion of the voyage.

Fees for this survey are fifteen dollars each, receipt of which is hereby acknowledged.

Port Warden.

Harbour Master.

Master SS. 'Longscar.'

PORT OF CHATHAM, N.B.

We, George T. Tait, port warden of the port of Chatham, Robert J. Walls, harbour master of the said port, and Alex. J. Loggie, of Chatham aforesaid, general merchant, do hereby certify that at the request of Robert Murray, Lloyds' agent at Chatham aforesaid, we held a survey on the damaged cargo of molasses and sugar now lying on the government wharf and adjacent warehouse at Chatham in the province of New Brunswick, salvaged and landed from the schooner *Minnie F. Crosby*, stranded on Escuminac reef at the entrance to the River Miramichi. We found:—

197 puncheons partly filled with molasses, but containing more or less sea water.

9 empty molasses puncheons.

32 tierces partly filled with molasses, but all containing more or less sea water.

3 empty molasses tierces.

124 barrels molasses all damaged with sea water.

21 empty molasses barrels.

184 barrels sugar all damaged by sea water.

1 empty sugar barrel.

After an examination of the above as it now lies, we condemn the same as damaged goods and recommend that it be sold for the benefit of all concerned.

Fees collected, \$15.

Dated at Chatham, N.B., June 29, 1911.

APPENDIX No. 28.

REPORT OF THE PORT WARDEN OF THE PORT OF HALIFAX, N.S., FOR
THE YEAR ENDED DECEMBER 31, 1911.PORT WARDEN'S OFFICE,
HALIFAX, N.S., January 4, 1912.

SIR,—I have the honour to report that during the year ended December 31, 1911, there has been shipped from the port of Halifax to the port of Liverpool, Great Britain, 181,645 bushels wheat.

No live stock has been shipped from Halifax during the year 1911.

Surveys have been held on eighteen steamers and eleven sailing vessels, which arrived at this port in a damaged condition during the year. The necessary repairs were made to the vessels, and those of them bound to other ports proceeded to their destination, where they have arrived safely.

Th Bkt. 'C. R. C.' mentioned in my report of January 2, 1911, has been sold at this port and will be converted into a coal barge.

RECEIPTS AND EXPENDITURES of the Port Warden at Halifax, N.S., from January 1, 1911, to December 31, 1911.

Dr.			Cr.
To amount received as fees.....	\$2,452 00	By paid assistants and office expenses.....	\$1,084 43
		" Amount to Port Warden.....	1,367 57
	\$2,452 00		\$2,452 00

I hereby certify that the above is a true and correct statement of the receipts and expenditures of the port warden at Halifax, N.S., from January 1, 1911, to December 31, 1911.

NEIL HALL,
Port Warden.

APPENDIX No. 29.

REPORT OF THE PORT WARDEN OF THE INTERNATIONAL PIER,
SYDNEY, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

Deputy Minister of Marine and Fisheries,

Sir,—I beg to submit my annual report of the international pier, Sydney, N.S., for the year ending December 31, 1911.

Date.	Vessel's Name.	Master.	Reg. Tonnage.	Cargo.	Place from	Place to	Draft forward	Draft aft.	Free board.	Mean draft.	Amount
1911.											
May 12.	Stormount.....	H. McMaster.....	1,231	Steel rails	Sydney, N.S.....	Quebec, P.Q.....	18'-4"	20'-2"	4'-1"	19'-3"	8 00
" 20.	Fairmount.....	P. C. Telfer.....	1,184	"	"	Montreal.....	17'-0"	19'-0"	7'-2 1/2"	18'-0"	8 00
" 25.	Kinnmount.....	J. Wood.....	1,597	"	"	Prince Rupert, B.C.	17'-0"	19'-0"	5'-7 1/2"	18'-4 1/2"	8 00
June 31.	Hans B.....	J. F. Christiansen.....	2,711	"	"	Port Arthur, Ont.	13'-0"	15'-0"	.....	14'-0"	8 00
" 6.	Carleton.....	E. Groulx.....	830	"	"	Brow Head for orders	13'-0"	15'-3"	.....	14'-11"	8 00
" 6.	Molino.....	T. Haraldsen.....	688	Deals.....	Chatham, N.B.....	Quebec, P.Q.....	14'-8"	20'-2"	4'-1"	19'-2 1/2"	8 00
" 9.	Glenmount.....	H. Peters.....	1,246	Steel rails	Sydney, N.S.....	Manchester, P.Q.....	18'-3"	20'-2"	5'-0"	19'-8"	8 00
" 12.	Terschelling.....	W. Fries.....	1,872	Deals.....	Barachois, Que.	Quebec, P.Q.....	19'-6"	20'-0"	16'-6 1/2"	25'-0"	8 00
" 12.	Lakonia.....	W. E. Mitchell.....	3,046	Lumber	Rivière du Loup.....	Buenos Ayres, A.R.	25'-0"	25'-0"	4'-6"	20'-9"	8 00
" 14.	Duart.....	J. O. Sullivan.....	2,008	Deals.....	Newcastle, N.B.	Manchester, Eng.	20'-8"	20'-10"	5'-6"	17'-8"	8 00
" 15.	Stormount.....	H. N. McMaster.....	1,231	Steel rails	Sydney, N.S.....	Montreal.....	22'-0"	22'-8"	22'-4"	9'-5"	8 00
" 17.	Bangor.....	John Brown.....	2,202	Deals.....	Campbellton, N.B.	Dublin.....	20'-0"	20'-0"	2'-5"	20'-0"	8 00
" 19.	Gen. Consul Pallisen.....	C. Christensen.....	1,350	"	Cape Tormentine.	Belfast.....	20'-0"	20'-2"	4'-1"	19'-2 1/2"	8 00
" 23.	Glenmount.....	H. Peters.....	1,246	Steel rails	Sydney, N.S.....	Montreal.....	18'-3"	20'-2"	4'-5 1/2"	20'-10"	8 00
" 26.	Newlands.....	T. A. Smith.....	1,937	Deals.....	Antigua, W.I.	Sharpeners, Eng.	20'-7"	20'-11"	4'-6"	20'-9"	8 00
" 26.	Brattingborg.....	M. Svensen.....	1,991	Deals.....	Chatham, N.B.	Montreal.....	17'-6"	19'-6"	4'-9"	18'-4"	8 00
" 28.	Fairmount.....	P. C. Telfer.....	1,186	Steel rails	Sydney, N.S.....	Quebec.....	16'-8"	20'-0"	7'-2 1/2"	18'-4"	8 00
July 5.	Kinnmount.....	John Wood.....	1,597	"	"	Port Arthur, Ont.	13'-8"	14'-7"	.....	14'-2"	8 00
" 10.	Carleton.....	E. Groulx.....	830	"	"	Quebec.....	22'-3"	22'-7 1/2"	5'-5"	22'-5 1/2"	8 00
" 13.	Westmount.....	A. Milligan.....	1,171	Sugar.....	Antigua, W.I.	Montreal.....	18'-4"	20'-2"	4'-1"	19'-3 1/2"	8 00
" 17.	Nyanza.....	D. McAllister.....	2,642	Steel rail.....	Sydney, N.S.....	Quebec.....	19'-4"	20'-2"	4'-5"	20'-10"	8 00
" 20.	Stormount.....	H. N. McMaster.....	1,231	Sugar.....	Trinidad, W.J.	Montreal.....	19'-8"	20'-0"	8'-5 1/2"	19'-10"	8 00
" 24.	Domira.....	J. W. Baker.....	2,001	Deals.....	Rimouski.....	Bristol.....	18'-3"	20'-2"	4'-1"	19'-2 1/2"	8 00
" 24.	Obi.....	James Evans.....	1,951	Deals.....	Sydney, N.S.....	Montreal.....	21'-0"	21'-2"	4'-8 1/2"	21'-1"	8 00
" 27.	Glenmount.....	H. Peters.....	1,246	Steel rails	Campbellton, N.B.	Sharpeners.....	13'-6"	14'-9"	.....	14'-10"	8 00
" 31.	Rubens.....	T. French.....	2,322	Deals.....	Chatham, N.B.	Newry.....	17'-6"	19'-6"	4'-9"	18'-6"	8 00
" 31.	Molino.....	T. Haraldsen.....	688	Deals.....	Sydney, N.S.....	Quebec, P.Q.....	13'-0"	16'-0"	.....	14'-6"	8 00
Aug. 9.	Fairmount.....	P. C. Telfer.....	1,184	Steel rails	Sydney, N.S.....	Port Arthur, Ont.	13'-0"	16'-0"	14'-6"	8 00
" 12.	Kinnmount.....	John Wood.....	1,597	"	"	Port Arthur, Ont.	13'-0"	16'-0"	14'-6"	8 00

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Aug.	16.	Carleton.....	E. Groulx.....	830	Steel rails	Sydney, N.S.....	Port Arthur, Ont.....	12'-10"	15'-8"	14'-3"	8 00
"	19.	Westmount.....	H. N. McMaster.....	1,171	Deals.....	Quebec.....	"	12'-8"	14'-7"	14'-2"	8 00
"	18.	Whitefield.....	H. Johns.....	1,560	Steel rails	Sydney, N.S.....	Barcelona.....	20'-6"	20'-10"	20'-8"	8 00
"	24.	Stormount.....	H. N. McMaster.....	1,231	Deals.....	Chatham, N.B.....	Port Arthur, Ont.....	13'-6"	15'-0"	14'-3"	8 00
"	23.	Longscar.....	J. Willis.....	1,773	Deals.....	Dalhousie, N.B.....	London.....	19'-11"	20'-3"	20'-1"	8 00
Sept.	5.	Hildawell.....	W. R. Willis.....	1,609	Steel rails	Sydney, N.S.....	Port Arthur, Ont.....	18'-8"	20'-0"	19'-4"	8 00
"	6.	Glenmount.....	H. Peters.....	1,246	Deals.....	"	"	13'-6"	15'-0"	14'-3"	8 00
"	12.	Kinnmount.....	John Wood.....	1,597	"	"	"	13'-0"	16'-0"	14'-6"	8 00
"	16.	Farmonut.....	P. C. Telfer.....	1,184	"	"	"	12'-0"	15'-2"	14'-0"	8 00
"	19.	Carleton.....	E. Groulx.....	830	"	"	"	13'-2"	16'-0"	14'-0"	8 00
"	21.	Westmount.....	C. Milligan.....	1,171	Deals.....	New York.....	St. Petersburg, Rus.....	21'-0"	21'-2"	21'-1"	8 00
"	25.	Glenae.....	T. A. Taylor.....	2,065	Steel rails	Sydney, N.S.....	Montreal.....	14'-0"	16'-4"	15'-2"	8 00
"	28.	Stormount.....	H. N. McMaster.....	1,231	Deals.....	Chatham, N.B.....	Manchester.....	22'-5"	22'-5"	22'-5"	8 00
Oct.	11.	Benedick.....	John Roberts.....	1,738	Steel rails	Sydney, N.S.....	Murray Bay, P.Q.....	14'-5"	15'-0"	1'-8"	8 00
"	12.	Sinbad.....	M. Hicks.....	538	Gen. carg.	Montreal.....	Port Arthur, Ont.....	12'-0"	16'-0"	14'-0"	8 00
"	27.	Carleton.....	E. Groulx.....	830	Pitch in	"	Melbourne, Aus'lia.....	20'-9"	24'-9"	22'-9"	8 00
Nov.	24.	Rakaia.....	— Dunn.....	3,660	bulk.....	Sydney, N.S.....	Antwerp, Belgium.....	19'-10"	21'-0"	20'-5"	8 00
"	30.	Britannic.....	— Grotters.....	1,507	Steel rails	"	Portland, Maine.....	16'-8"	17'-9"	17'-3½"	8 00
Dec.	30.	Cape Breton.....	A. H. McDonald.....	1,109							
				72,916							384 00

I certify that the above is a true and correct account of port warden's record for the year ending December 31, 1911.

NELSON H. TOWNSEND,

Port Warden.

APPENDIX No. 30.

MONCTON, N.B., January 7, 1912.

To the Honourable,
The Minister of Marine and Fisheries,
Ottawa.

SIR,—In pursuance of the provisions of section 899, chapter 113, of the Canadian Shipping Act, I beg to submit my annual return for the year 1911, as port warden for the Port of Moncton, N.B.

I beg to report that I was called upon to make a survey on the hatches of the schr. *Basile* on her arrival on April 27, 1911, on a voyage from Barbadoes to Moncton, with a cargo of molasses.

Also held a survey on the hatches of the same vessel on August 3, 1911, from Barbadoes to Moncton, with a cargo of molasses.

I made my report, having found everything in good condition. No casualties occurred to shipping in Port of Moncton during year 1911.

Receipts of office have been ten dollars.

I have the honour to be, sir,

Your obedient servant,

R. C. BACON,
Port Warden.

APPENDIX No. 31.

REPORT OF THE PORT WARDEN OF NORTH SYDNEY, N.S., FOR THE YEAR ENDED DECEMBER 31, 1911.

NORTH SYDNEY, December 31, 1911.

Deputy Minister of Marine and Fisheries,

SIR,—I have the honour to submit my annual report as port warden for the year ended December 31, 1911.

I made surveys on the following vessels:—

SS. *Millville*, *Molena*, *Serrona*, *Bernie*, *Canada*, *Cape Ness*, *Weymouth*, *Sargasso*, *Degamo*, *Millville*, *Honseat*, *Mashaneu*, *Armyr*, *Arelight*, *Lavanda*, *Elva M.*, *Hattie C.*

I am, sir, your obedient servant,

W. H. KELLY,
Port Warden.

APPENDIX No. 32.

REPORT OF THE PORT WARDEN OF THE PORTS OF PRINCE EDWARD
ISLAND FOR THE YEAR ENDING DECEMBER 31, 1911.

CHARLOTTETOWN, P.E.I., December 30, 1911.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit my annual report of the business of my office for the year ending December 31, 1911.

Navigation remained open this year later than usual, which enabled vessels to load cargoes and proceed to sea in safety.

Receipts and expenditures of the port warden's office for the year ending December 31, 1911.

Received from inspecting general cargoes.. . . .	\$34 00
“ “ hatches.. . . .	11 00
“ other surveys.. . . .	16 00
Total receipts.. . . .	\$61 00
Paid deputy for services.. . . .	5 00
Balance.. . . .	\$56 00

I am, sir, your obedient servant,

H. P. WELSH,

Port Warden.

APPENDIX No. 33.

REPORT OF THE PORT WARDEN OF PORT HAWKESBURY, N.S., FOR
THE YEAR ENDING DECEMBER 31, 1911.

PORT HAWKESBURY, N.S., January 12, 1912.

ALEX. JOHNSTON, Esq.,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I have the honour to submit my annual report of the doings of this office including a statement of the fees collected by me and a statement of expenses for the year ending December 31, 1911.

Two surveys on the schooner <i>Wilkie IV</i>	\$23 00
One survey on schooner <i>Empress</i>	10 00
	<hr/>
	\$33 00
Paid William Duff, shipwright	5 00
Paid J. J. Hennesey, master mariner	5 00
Paid John Langley, shipwright	5 00
	<hr/>
	\$15 00
Amount reverting to Port Warden	18 00

I am, sir, your obedient servant,

NICHOLAS MARTIN,
Port Warden.

APPENDIX No. 34.

REPORT OF THE PORT WARDEN OF THE PORT OF QUEBEC, QUE., FOR
THE YEAR ENDING DECEMBER 31, 1911.

QUEBEC, QUE., December 30, 1911.

ALEX. JOHNSTON, Esq.,
Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—As requested by section 30 of the Port Warden's Rules, I beg respectfully to submit the following annual statement of the business transacted in this office during the year ending December 30, 1911.

Fifty-eight steamers were surveyed for clearance outwards after taking part cargo on board at this port, having previously shipped part cargo of grain and other goods at Montreal. Forty-nine steamers were surveyed, their hatches opened and cargo examined on their arrival from sea.

Three steamers and two barges were surveyed on account of collision damage.

Six steamers and one barge were surveyed on account of grounding and stranding in the River St. Lawrence, below and above Quebec.

Three steamers, one tug and one bateau were surveyed and value estimated for general average purpose.

Eight surveys were held on damaged goods in store and on wharfs. The receipts and disbursements of this office are as follows.

Receipts.....	\$1,121 50
Expenses.....	270 00
	<hr/>
	\$851 50

Two steamers took live stock at Quebec during the season, amounting to 578 cattle. No fees were collected for cattle. Two steamers took part cargo of grain.

With much respect, I remain,

Your obedient servant

ALEX. RUSSELL,
Port Warden.

APPENDIX No. 35.

REPORT OF THE PORT WARDEN OF THE PORT OF ST. ANDREWS, N.B.,
FOR THE YEAR ENDING DECEMBER 31, 1911.

ST. ANDREWS, N.B., January 12, 1912.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—I beg to submit my annual report of the work performed by me during the past year, in the capacity of port warden.

On January 15, I surveyed the hatches of the schooner *Pasaquid*, Captain Densimore, from Boston, Mass, with a cargo of fertilizer. I found the hatches properly protected and the cargo in good order. Fees, \$2.50.

On March 22, I surveyed the hatches of the schooner *McIntyre*, 96 tons register, Captain C. W. Cole; cargo in good order. Fees, \$2.50.

On June 21 I surveyed the hatches of the schooner *Silver Leaf*, Captain Talter; found the cargo of cement from New York, in good order. Fees, \$2.50.

Total fees, \$7.50.

I am, sir, your obedient servant,

JOHN WREN,

APPENDIX No. 36.

REPORT OF THE PORT WARDEN OF THE PORT OF WESTPORT, N.S.,
FOR THE YEAR ENDING DECEMBER 31, 1911.

WESTPORT, N.S., January 2, 1912.

ALEX. JOHNSTON, Esq.,

Deputy Minister of Marine and Fisheries.

SIR,—I have the honour to submit my annual report for the year ending December 31, 1911.

I have not had occasion to visit any vessels or collect any dues.

I am, sir, your obedient servant,

GEORGE WELCH,
Port Warden.

APPENDIX No. 37.

REPORT OF THE PORT WARDEN OF THE PORT OF LOUISBURG, N.S.,
FOR THE YEAR ENDING DECEMBER 31, 1911.

LOUISBURG, N.S., December 31, 1911.

A. JOHNSTON, Esq.,
Deputy Minister Marine and Fisheries,
Ottawa.

SIR,—I beg to submit the following report as port warden for the port of Louisburg, N.S., for year ending December 31, 1911:—

April 26.—Held survey on steamship *Rosalind*, of Liverpool, Eng., 1,634 tons register, J. R. Williams, master. Found ship had suffered damage to frames 8, 9 and 10, on port side; damage caused by being in ice floes in Gulf St. Lawrence, damage well above water line. Ordered ship proceed on her voyage to Montreal, there to effect repairs.

November 29.—Held survey on schooner *Pearl Evelyn*, of Lunenburg, N.S., 99 tons register, Wm. McKay, master. Found ship with part bulwarks gone, boat carried away, tarpaulins washed from hatches and other damage to superstructure. Ordered necessary repairs made here and boat supplied. On repairs being made in a satisfactory manner, gave order for ship to proceed on voyage to Halifax, N.S.

December 12.—Held survey on schooner *Limelight*, of Charlottetown, P.E.I., 126 tons register. Captain A. Bushby. Vessel had grounded on eastern and Battery island; found part of fore foot started off, vessel otherwise tight and in seaworthy condition. Ordered vessel to proceed to nearest marine railway for repairs.

December 18.—Held survey on steamer *Anticosti*, 1121 tons register, of Liverpool, N.S., found steamer had tail shaft broken, otherwise good and seaworthy, ordered ship be sent to her destination (Halifax, N.S.) for repairs, by a capable ocean going tug-boat.

I have the honour to be, sir,
Yours very respectfully,

DONALD J. MATHESON,
Port Warden.

APPENDIX No. 38.

REPORT OF THE PORT WARDEN OF NANAIMO, B.C., FOR THE YEAR
ENDING DECEMBER 31, 1911.

NANAIMO, B.C., January 2, 1912.

The Deputy Minister Marine and Fisheries,
Ottawa.

SIR,—I beg to report that I made no collections at this office during the past year as my services were not called for.

I have the honour to be, sir,
Your obedient servant,

J. S. KNARSTON,
Port Warden.

APPENDIX No. 39.

REPORT OF THE PORT WARDEN OF THE PORT OF VANCOUVER, B.C.
FOR THE YEAR ENDING DECEMBER 31, 1911.

VANCOUVER, B.C., January 8, 1912.

Deputy Minister of Marine and Fisheries,
Ottawa.

SIR,—In compliance with R.S. 113, chap. XIII, section 899, I have the honour to herewith make my report.

I was appointed to the position of port warden on January 30, 1911, and have faithfully carried out the instructions contained in R.S. 113, chap. XIII, to the best of my ability.

The surveys carried out on the hatches of vessels arriving at this port and also on the cargoes have been attended to upon request and gave satisfaction to all parties concerned.

Fees to the amount of eight hundred and fifty dollars have been collected from date of appointment to the close of the year.

By fees collected.	\$850 00
To expenses in connection with office—	
“ travelling expenses at \$8 per month	96 00
“ stationery.	25 00
“ stamps and petties.	10 00
	<hr/>
	131 00
By balance received by A. H. Reed.	<hr/> 719 00

I am, sir, your obedient servant,

A. H. REED,
Port Warden.

APPENDIX No. 40.

REPORT OF THE PORT WARDEN OF WINDSOR, N.S., FOR THE YEAR
ENDING DECEMBER 31, 1911.

HANTSPOUT, N.S., January 8, 1912.

Deputy Minister of Marine and Fisheries.

SIR,—I beg to report that I had four surveys during the year 1911, the first on the American schooner *Theresa Wolfe*, for which I received the fee of \$8. This survey was held on May 18, 1911. The other three were held on November 20 and 29, on the schooner *Genevieve* of St. John, N.B. The fees from these inspections were \$24. Total fees, \$32.

I am, sir, your obedient servant,

WILLIAM FOLKER,
Port Warden.

APPENDIX No. 41.

REPORT OF THE PORT WARDEN OF THE PORT OF MONTREAL FOR
THE YEAR ENDING DECEMBER 31, 1911.

MONTREAL, January 5, 1912.

Honourable J. D. HAZEN,
Minister of Marine and Fisheries,
Ottawa.

Sir,—I have the honour by direction of the council of this board and in compliance with section 31 of the Act governing the Port Warden Office, 45 Vic., Chap. 45, to transmit herewith documents as follows:—

1. Port Warden's annual report for the year 1911.
2. Audited statement of receipts and expenditures of the port warden office for the year ending December 31, 1911.
3. Statement of investments of port warden surplus funds.

I have the honour to be, sir,
Your obedient servant,

GEO. HADRILL,
Secretary.

OFFICE OF THE PORT WARDEN,
MONTREAL, December 27, 1911.

To the President and Council
of the Montreal Board of Trade.

GENTLEMEN,—I have the honour to submit the annual report of the business of the Port Warden's Office with the statements of exports, receipts and expenditure for the season of navigation, 1911.

Owing to the services rendered by the government ice-breaking steamers, the harbour and river were open, clear of ice and buoys, all laid before the ocean steamships were due to arrive.

Navigation opened by the arrival from Quebec of the steamers *Lady of Gaspe* on April 26, and the *Amethyst* and *Cascapedia* on April 27.

The first ocean steamship to arrive was the SS. *Royal George* from Avonmouth, at 7.30 a.m., April 29.

Early in the season the Straits of Belle Isle were open and clear of ice from the westward but were badly obstructed and blocked with field ice and bergs to the eastward. The SS. *Lake Manitoba* passed through the strait at 6.30 a.m., May 29, but was detained by heavy field ice and bergs on the outside of the strait for 42 hours before getting clear.

Navigation continued to be impeded more or less by ice on the Belle Isle route till the middle of June.

The only disaster of a serious nature we have to record this season between Quebec and this port, was the stranding of the SS. *Lake Champlain* off Laurier pier, on October 27, in a snow storm.

After being lighted and floated she was taken to dry dock at Quebec for repairs.

This season for the first time in history of the port, the house flag of the Cunard Steamship Company, Limited, was seen flying in the harbour, they having inaugurated a passenger service from Montreal to London, calling at Southampton, which appears to be successful.

3 GEORGE V., A. 1913

The last ocean steamship to sail hence this season was the SS. *Bray Head*, for Belfast. She left this port at 1.30 p.m. on Sunday, December 3, and sailed from Quebec at 6.30 a.m. on December 8.

No ocean or foreign-going sailing ship visited our port this season, they are, I fear a thing of the past.

Three hundred and ninety-eight transatlantic or foreign-going vessels reported at this office this season with a tonnage of 1,714,354 tons, against 399 vessels and 1,638,581 tons last season, a decrease of 1 vessel and an increase of 75,773 tons.

The business to the lower ports this season consisted of: Entered, 352 vessels of all classes with a tonnage of 637,431 tons, against 333 vessels and 570,705 tons, an increase of 19 vessels and 66,726 tons over last season.

Clearances of vessels loaded for the lower ports this season, 108 vessels of all classes with a tonnage of 85,708 tons, against 99 vessels of 73,681 tons, an increase of 9 vessels and 12,027 tons over last season.

The shipments of various kinds for the past season manifested and reported at this office are as per attached statement.

All of which is respectfully submitted.

ARCHIBALD REID,

Port Warden.

SESSIONAL PAPER No. 21

STATEMENT of Investments of the Port Warden's Office at Montreal, and for interest accruing therefrom for the year ending December 31, 1911.

Feb. 16, 1880	Expended \$ 2,380 34	in purchase of Dominion Government stock.....	\$ 2,300 00 at $3\frac{1}{2}\%$ per annum for 12 $\frac{1}{2}$ months.....	\$ 80 50
Feb. 18, 1884	"	5,031 34	"	"
March 14, 1887	"	10,320 75	"	"
Jan. 6, 1906	"	10,000 00	"	"
Jan. 23, 1907	"	4,000 00	"	"
Jan. 5, 1908	"	3,090 00	"	"
April 27, 1909	"	4,090 00	"	"
July 20, 1910	"	7,227 50	"	"
Loans to Montreal Board of Trade building fund.....			"	"
Total investments.....			\$115,300 00	Total interest.. \$ 4,810 50

NORMAN WIGHT,

Treasurer Montreal Board of Trade

GEO. HADRILL,

Secretary Montreal Board of Trade.

MONTREAL, January 5, 1912.

3 GEORGE V., A. 1913

COMPARATIVE statement of shipments 1910-11, as per manifests reported at the Port Warden's Office.

Description.	1911.	1910.	Increase 1911.	Decrease 1911.
Wheat..... bus.	18,017,235	20,423,775		2,406,540
Buckwheat..... "	29,099	110,908		81,809
Peas..... "	37,097	38,006		909
Barley..... "	81,864	486,929		405,065
Oats..... "	5,726,780	3,271,124	2,455,656	
Corn..... "	5,705,864	2,708,307	2,997,557	
Flaxseed..... "	17,230	135	17,095	
	29,615,169	27,039,184	5,470,308	2,894,323
			2,894,323	
Total increase for the year 1911.....			2,575,985	
Flour and meal..... Bbls.	1,836,732	1,238,790	597,942	
Ashes..... "	591	669		78
Apples..... "	259,095	157,283	101,812	
Cheese..... Boxes	1,797,611	1,888,769		91,068
Butter..... Pkgs.	132,847	29,540	103,307	
Eggs..... "	4,791		4,791	
Boxmeats..... "	225,605	181,302	44,303	
Lard..... "	559,643	411,621	148,022	
Pulp..... Tons.	6,102	6,023	79	
Paper..... "	18,867	16,992	1,875	
Sundries..... "	104,260	86,929	17,331	
Hay..... "	58,903	52,630	6,273	
Oilcake..... "	19,327	26,716		7,389
Minerals..... "	14,127	14,341		214
Dried grains..... "	232		232	
Lumber..... Ft. B M.	95,871,940	109,076,306		13,204,366
Cattle..... Head	45,283	72,686		27,403
Horses and mules..... "	458	472		14
Sheep..... "	3,454	552	2,902	

STATEMENT of Over Sea or Foreign-going Vessels.

Description.	1911.		1910.	
	No.	Tons.	No.	Tons.
Steamers.....	398	1,714,354	398	1,636,960
Sailing vessels.....			1	1,621
	398	1,714,354	399	1,638,581

Decrease of 1 vessel and increase of 75,773 tons.

STATEMENT of Lower Port Arrivals.

Description.	1911.		1910.	
	No.	Tons.	No.	Tons.
Steamers.....	321	634,544	297	567,338
Sailing vessels.....	31	2,887	36	3,367
	352	637,431	333	570,705

Increase of 19 vessels and 66,726 tons.

SESSIONAL PAPER No. 21

CLEARANCES for Lower Ports.

Description.	1911.		1910.	
	No.	Tons.	No.	Tons.
Steamers.....	88	83,814	77	71,601
Sailing vessels.....	20	1,894	22	2,080
	108	85,708	99	73,681
Increase of 9 vessels and 12,027 tons.				
29th Dec. Revenue, 1911.....				\$9,403 28
“ Revenue, 1910.....				8,329 84
Increase.....				\$1,073 44

3 GEORGE V., A. 1913

STATEMENT of Receipts and Expenditure for the year ending December 31, 1911.

DR.

Dec. 31, 1910.

To Balance cash in bank..... \$ 9,150 23
 Balance cash in Port Warden's hands..... 105 56

Dec. 31, 1911.

Revenue derived as under:—

18,017,235 bushels wheat.....
 29,099 " buckwheat.....
 37,097 " peas.....
 81,864 " barley.....
 5,726,780 " oats.....
 5,705,864 " corn.....
 17,230 " flaxseed.....
 19,327 tons oilcake.....
 14,127 " minerals.....
 58,903 " hay.....
 45,741 head oxen, horses and mules.....
 3,454 " sheep.....
 591 bbls. ashes.....
 1,836,732 " flour and meal.....
 259,095 " apples.....
 287,811 tons sundries.....
 95,871,940 feet sawn lumber.....
 Port Warden's fees (inwards).....
 Port Warden's fees (outwards).....
 Special surveys.....
 Damaged cargo certificates.....

Interest, bank account.....
 Interest, treasurer Board of Trade.....

Jan. 1, 1912.

To balance..... \$ 12,468 93

Audited and found correct,

MONTREAL, Jan. 3, 1912.

CR.

Dec. 31, 1911.

By Paid salaries, Port Warden's and staff..... \$ 9,464 94
 Board of Trade, secretarial expenses..... 1,000 00
 Rent, fuel and taxes..... 318 23
 Telephones, light, cleaning office, &c..... 163 68
 Lloyd's register and shipping papers..... 71 34
 Books, printing and stationery..... 49 75
 Cab and car-fares..... 17 45
 Miscellaneous expenses..... 36 75
 Alf. W. Hadrill, auditor..... 100 00

Outstanding accounts.....
 Balance cash in bank..... 12,306 14
 Balance cash in Port Warden's hands..... 140 06

\$11,227 14
 22 73

11,249 87

12,446 20

\$ 23,696 07

ALF. W. HADRILL,
Auditor.

ARCHIBALD REID,
Port Warden.

APPENDIX No. 42.

REPORT OF THE PORT WARDEN OF THE PORT OF VICTORIA AND
ESQUIMALT, B.C., FOR THE YEAR ENDING DECEMBER 31, 1911.

January 5, 1912.

Deputy Minister of Marine and Fisheries,

SIR,—I have the honour of submitting my report as port warden of the ports of
Victoria and Esquimalt for the year ending December 31, 1911.

I received for the inspection of hatches and cargoes	\$506 00
“ two certificates	2 00
Total amount	<hr/> \$508 00

I have the honour to be, sir,
Your obedient servant,

CHARLES CLARKE,
Port Warden.

APPENDIX No. 43.

REPORT OF THE PORT WARDEN OF THE PORT OF YARMOUTH, N.S.,
FOR THE YEAR ENDING DECEMBER 31, 1911.

YARMOUTH, N.S., January 2, 1912.

Deputy Minister of Marine and Fisheries,

SIR,—Enclosed please find my annual report for the year ending December 31,
1911.

I collected surveyor's fees of \$216 for making 22 surveys on 15 vessels.

I am, sir, your obedient servant,

GEORGE L. WETMORE,
Port Warden.

APPENDIX No. 44.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF
ALBERTON, PRINCE COUNTY, P.E.I.

Pilotage Commissioners.	Appointed.	Change.
<i>Names</i>		
James F. White.....	O. C. 25 Sept., 1897.	James S. Gordon, Commis- sioner, deceased.
John T. Profit.....	O. C. 25 Aug., 1905.....	
Name, age, and earnings of pilot.	Age Appointed.	Earnings.
<i>Name.</i>		
No. 5, Charles Gallant	47 16 Oct., 1910.....	No return.

No apprentice pilots in this Authority.
No white flag ships licensed during the year.
Navigation at this port opens 24th April and closes 15th December.

JAMES F. WHITE,
Chairman.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage.

The rates of pilotage dues at the ports within said pilotage district shall be as follows:—

	Per foot draft.	
	Inwards.	Outwards.
Vessels of 120 tons and under 250 tons.....	\$1 00	\$0 80
“ 250 tons and upwards.....	1 50	1 00

And on all vessels under 120 tons, accepting the services of a pilot, eight cents per ton inwards and six cents per ton outwards.

SESSIONAL PAPER No. 21

APPENDIX No. 45.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF BRAS D'OR, VICTORIA COUNTY, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS

Pilotage Commissioners	Appointed.	Changes
<i>Names</i>		
Captain Daniel Livingstone.....	O. C. 20 May, 1891.....	Captain Daniel Livingstone resigned in December, 1911
Captain Daniel McRae.....	O. C. 31 Aug., 1906.....	
J. Donald McRae.....	O. C. 31 Aug., 1906.....	
Geo. Hallifield.....	O. C. 31 Aug., 1906.....	

NAMES AND AGE OF PILOTS AND EARNINGS

	Age	Appointed	Earnings
<i>Names.</i>			
Archibald Livingstone.....	62	1894	
George McKay.....	60	1894	
Daniel Campbell.....	48	1894	
William Carey.....	59	1895	
Ingraham R. Carey.....	42	1897	
Donald McLean.....	58	1898	
Nicholas Murphy.....	53	1909	

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

Any monies collected for pilotage were distributed among the pilots.

GEORGE HALLIFIELD,

Secretary.

December 31, 1911.

SCALE of Pilotage Fees for the Pilotage district embracing the ports, harbours and bays in Bras d'Or Lakes in the Great and Little Bras d'Or belonging to the County of Victoria.

Vessels of	Big Bras d'Or.	Port Devis.	St. Ann's.	Little Narrows.	Grand Narrows to boundary line of District.	Baddeck.
Tons.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.	\$ cts.
120—200.....	5 00	7 00	7 00	11 00	12 50	8 00
200—250.....	6 00	8 00	8 00	14 00	14 50	11 00
250—300.....	7 00	9 00	9 00	16 00	16 50	12 00
300—350.....	8 00	12 00	12 00	17 00	17 00	12 00
350—400.....	9 00	12 00	12 00	18 00	18 00	13 00
400—450.....	11 00	14 00	14 00	19 00	19 50	15 00
450—500.....	11 00	14 00	14 00	19 00	19 50	15 00
500—600.....	12 00	15 00	15 00	19 00	20 00	16 00
600—700.....	13 00	16 00	16 00	20 00	21 00	17 00
700—800.....	14 00	17 00	17 00	21 00	22 00	18 00
800—900.....	15 00	18 00	18 00	22 00	23 00	19 00
900—1,000.....	16 00	19 00	19 00	23 00	24 00	20 00
1000—1,500.....	18 00	21 00	21 00	24 00	25 50	22 00
1500—2,000.....	21 00	24 00	24 00	26 00	27 50	25 00

3 GEORGE V., A. 1913

APPENDIX No. 46.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF
BATHURST, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
John J. S. Hackey.....	O. C. 16th May, 1903.....	A vacancy exists on the Commissioners' Board since 1910.
White, Henry.....	O. C. 20th Sept., 1904.	
Richard Southwood.....	O. C. 21st June, 1909.	
Thomas Canty.....	O. C. 30th Aug., 1907.	
P. J. Venoit, Secretary.....	Appointment not confirmed.	

NAMES OF PILOTS, AGE AND EARNINGS.

Names.	Age.	Appointed.	Earnings.
William H. Daley.....	53	1892	\$273 95
David Ronalds.....	46	1900	290 53
Peter L. Roy.....	45	1907	119 58
			684 06

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

Vessels which paid Pilotage Fees for the Year.	Tonnage.	Amount pd.
British steam vessels.....	7,123	\$ cts. 184 43
British sailing vessels.....	575	75 30
Foreign steam vessels.....	9,845	353 93
Foreign sailing vessels.....	1,454	70 40
	18,997	684 06

RECEIPTS AND EXPENDITURES.

Receipts.	\$ cts.	Expenditures.	\$ cts.
For pilotage.....	684 06	Paid to Commissioners five per cent on amount of pilotage collected....	
		Commissioners.....	13 62
		To Secretary.....	20 19
		To pilots.....	650 25
	684 06		684 06

SESSIONAL PAPER No. 21

The rates of pilotage dues for the time being in force in this district including the amounts and descriptions of all charges upon shipping made in respect of pilotage.

Sailing Vessels.

Inwards—

To forks of channel.....	\$1 20 per foot.
To above said forks.....	1 40 "

Outwards—

From below forks.....	0 80 "
From above forks.....	1 00 "

Steamers.

In addition to the rates paid by sailing vessels steamers shall pay one cent register on net ton inwards or outwards, but shall not be required to pay the additional fee both ways; and in the event of a change of pilots, going outwards, this additional fee shall be divided equally between the pilots concerned.

P. J. VENIOT,

Secretary.

December 31, 1911.

APPENDIX No. 47.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF BAIE VERTE AND CAPE TORMENTINE, FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Hazen Copp.....	O. C. June 25, 1901.	
Capt. Jacob Allen.....	O. C. June 25, 1901.	
James Noonan.....	O. C. June 25, 1901.	
Harvey Allen.....	O. C. June 25, 1901.	
Fred. Turner.....	O. C. Sept. 16, 1910.	

Rates of pilotage in the district—

Sailing vessels, per foot draught of water.....	\$1 50
Steam vessels, per foot draught of water.....	2 00

3 GEORGE V., A. 1913

NAMES AND AGE OF PILOTS AND EARNINGS.

Names.	Age.	Earnings.
John A. Reid.....	46	\$145 50
Mont Allen.....	49	145 50
		291 00

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

Vessels which paid pilotage fees for the year—

Number.		Tonnage.
2	British steam vessels.....	2,322
	British sailing vessels.....	
3	Foreign steam vessels.....	4,026
	Foreign sailing vessels.....	

Pilge boats—

Number.		Cost of Maintenance.
1	Twenty-five dollars.....	\$ 25 00

Money distributed among the pilots.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage.

Sailing vessels: per foot draught of water.....	\$1 50
Steamers: per foot draught of water.....	2 00

APPENDIX No. 48.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF BUCTOUCHE, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
John C. Ross.....	O. C. April 28, 1877.....	Venant Bourque, does not appear to be Commissioner any more.
B. X. Foley.....	O. C. April 28, 1877.....	
James McNairn.....	O. C. April 28, 1877.....	
Daniel T. Laundry.....	O. C. July 2, 1887.....	

SESSIONAL PAPER No. 21

NAMES OF PILOTS, AGE, AND EARNINGS.

Names.	Age.	Appointed.	Earnings.
Joseph Crossman.....	60	1898	\$101 00
John Mooney.....	37	1907	53 00
Peter A. Smith.....	45	1907	.....
			\$154 00

2 pilots of this Authority have forfeited their license.
 1 pilot has resigned and removed to the United States.
 No apprentice pilots in this Authority.
 No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount paid.
3 British steam vessels, coal carriers.....	755	\$99 00
2 British sail vessels, schooners, optional.....	197	20 00
1 Foreign sailing barkentine.....	204	35 00
	1,156	\$154 00

The money thus earned by the pilots was divided among them, and expenses were defrayed by them also,

PILOTAGE BOATS.

1. Eva.....	Cost of maintenance—repairing sails, &c.....	\$4 00
2.	“ “ “ “	3 50
3. Alva.....	“ “ “ and repainting	4 50
		\$12 00

Navigation at this port began on April 20th and closed on November 28th.

JOHN C. ROSS,
Secretary.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage.

Pilotage fees are charged as per section 12 of rules and regulations for the district, viz., One dollar and fifty cents (\$1.50) per foot draught of water, both inward and outward bound.

No other compulsory charge in respect of pilotage. When vessel is taken by pilot over the reef from anchorage ground outside the bar the charge is five dollars, but this is not compulsory.

APPENDIX No. 49.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF CARA-
QUET, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS

Names	Appointed	Changes
Colson Hubbard.....	O. C. 11 Nov., 1881.....	None.
George Le Riche.....	O. C. 6 Apr., 1903.....	"
Charles L. Robichaud.....	O. C. 29 June, 1910.....	"
Honore Duguay.....	O. C. 29 June, 1910.....	"

NAMES OF PILOTS, AGE AND EARNINGS.

Names.	Age	Appointed	Earnings.
Charles Vibert.....			\$ 140 00
Lazuar Gauvin.....			
Joseph E. LeBouthillier.....			
Alexander J. Wilson.....			56 00
James Vanteigne.....			15 00
Pierre E. Le Bouthillier.....			
Theotine Le Bouthillier.....			
Joseph T. Cheasson.....			52 80
Edward LeBouthillier.....			160 60
			\$424 40

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number		Tonnage	Amount paid.
5	British sailing vessels.....	882	\$ 123 60
1	Foreign steam vessels.....	873	30 80
10	Foreign sailing vessels.....	4,955	294 20
		6,715	\$ 448 60

SESSIONAL PAPER No. 21

RECEIPTS AND EXPENDITURES.

Paid by the ships piloted to pilots
directly:—

Charles Vibert	\$ 2 00
Pierre LeBouthillier	2 00
Theotime LeBouthillier	4 00
Joseph E. LeBouthillier	5 00
Joseph F. Cheasson	1 00
Edward E. LeBouthillier	1 00
James T. Vanteigne	1 00
Alex. J. Wilson	1 00
Lazaur Gauvin	1 00

\$ 18 00

Paid for paper and postage	\$ 1 00
Salary secretary	17 00

\$ 18 00

No special pilotage boats.

Navigation at this port opens May 1st and closed November 15th

C. HUBBARD,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

Pilotage inwards, \$1.20; outwards, \$1 foot.

This is the only charge in respect to pilotage in this district.

APPENDIX No. 50.

REPORT OF PILOTAGE COMMISSIONERS FOR THE DISTRICT OF CHARLOTTE COUNTY, N.B., FOR THE YEAR ENDING DECEMBER 31, 1912.

Names of Pilotage Commissioners:—Samuel Johnson, Jesse Dustan, R. H. Keay; Appointed 1909.

Name of pilot:—Joseph Boyd, age, 74; appointed, 1862; earnings, \$210.

Number apprentice pilots:—None.

White flag ships licensed:—None.

STATEMENT OF VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	—	Tonnage	Amt. paid
2	British sailing vessels	284	\$ 48 00
6	Foreign sailing vessels	1,650	162 00
		1,934	\$210 00

No pension relief.

Pilotage boats:—

Crusoe, Statement of cost of maintenance:—\$100.

Navigation in this port open the year round.

R. H. KEAY,
Secretary.

December 31, 1911.

21—23½

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage.

All vessels brought into any port or harbour or landing place in the county of Charlotte, or departing therefrom, and liable by law to pay pilotage, shall be chargeable with or pay the rates of pilotage hereinafter named.

1. From Seal islands, Cross Islands, Little river, southwest ledges of Grand Manan, Kents island, Long Island bay, Moose river and Bailey Mistake to St. Andrews, St. Stephen or any harbour or loading place in the county of Charlotte (except Campobello or the Lines), pilotage inwards or outwards, \$2.25 per foot.

2. From North Head of Grand Manan, Beaver Harbour and West Quoddy lighthouse to any port or harbour in the county of Charlotte (except Campobello or the Lines), pilotage inwards or outwards, \$1.60 per foot.

3. From Head Harbour lighthouse to any port or harbour in the county of Charlotte, pilotage inwards or outwards, \$1.50.

4. From or to Campobello or the Lines, the pilotage inwards or outwards to be 20 cents per foot less than the above rates.

5. From Eastport or Green's point to any port or harbour in the county of Charlotte, pilotage inwards or outwards, \$1 per foot.

6. From November 1 to April 1, inward and outward bound vessels to pay 20 cents per foot over and above the rates above named.

7. Removing a vessel to or from St. Andrews harbour to Ballast Ground vessels from 80 tons to under 300 tons, \$2.50; 300 tons or upwards, \$3.

8. Removing a vessel from one loading place or harbour to any other landing place or harbour inside St. Andrew's bay, vessels from 80 tons to 200 tons, \$4; over 200 tons to 300 tons, \$5; over 300 tons to 400, \$6; exceeding 400 tons, \$8.

9. Removing a vessel from any harbour or loading place inside St. Andrew's bay to any harbour or landing place outside St. Andrew's bay and within the county of Charlotte, pilotage inward or outwards, vessels of 80 tons and under 200 tons, \$6; 200 tons and under 300 tons, \$8; 300 tons and under 400 tons, \$10; 400 tons and upwards, \$12.

APPENDIX No. 51.

REPORT OF CANADIAN GOVERNMENT STEAMER *EUREKA*, CRUISING OFF FATHER POINT FOR THE YEAR ENDING DECEMBER 31, 1911.

Number of days at work.....	195		
Number of miles covered.....	4,500½		
	Hours.	Minutes.	
Number of hours at sea.....	584		56
	Inward.	Outward.	
Number of steamers boarded.....	630		597
Number of steamers passing off.....	255		221
Number of miles covered on those steamers.....	5,531		
Number of yachts boarded.....	8		7
Number of barks boarded.....	9		5
Total of steamers boarded.....			1,227
Total of yachts boarded.....			15
Total of barks boarded.....			14
Grand total.....			1,256
Vessels passing off.....			476
Number of fires.....			182
Coal on hand.....			7,169½
Coal consumed.....			370½

J. R. BELANGER,
Captain.

SESSIONAL PAPER No. 21

APPENDIX No. 52.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF HARVEY AND OUTPORT OF WATERSIDE, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

NAMES OF COMMISSIONERS.

Names.	Appointed.	Changes.
Major C. Anderson.....	O.C., 29 June, 1901.....	None.
Wesley Wilber.....	O.C., 12th May, 1909.....	"
Captain Millidge Kennie.....	O.C., 22nd Feb., 1911.....	"

Names of pilots not given in return.
No apprentice pilots in this Authority.

No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount paid.
6 British steam vessels.....	13,255	\$ 360 57
1 Foreign steam vessel.....	1,289	41 87
3 Foreign sailing vessels.....	2,268	51 19
	16,812	\$ 453 63

RECEIPTS AND EXPENDITURES.

Receipts—	Expenditures—	
For pilotage fees.....	\$453 63 Distributed among pilots and secretary's commission, &c.....	\$453 63
	\$453 63	\$453 63

M. C. ANDERSON,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this District including the amounts and description of all charges upon shipping made in respect of pilotage:—
Port of Harvey inwards, one cent for registered ton.
Port of Harvey outwards, one and one-half cents per registered ton.
Port of Alma inwards, one and one-half cents per registered ton.
Port of Alma outwards, one and three quarter cents per registered ton.

APPENDIX No. 53.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF HALIFAX, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Mc. Grant.....	1892	
J. J. Bremner.....	1883	
Jas. Hall.....	1904	
J. E. DeWolf.....	1907	
Neil Hall.....	1908	
F. G. Rudolf.....	1909	

NAMES OF PILOTS, EARNINGS, WHEN APPOINTED AND AGE.

No.	Names.	Age.	When appointed.	Earnings.
2	Jas. G. Rumner.....	26	1911	
3	Lemont Power.....	23	1911	
5	Lawrence Hayes.....	32	1905	
6	Frank Thomas.....	34	1898	
7	Bernard Brackett.....	29	1905	
8	William Hayes.....	36	1898	
9	Wallace Brackett.....	25	1911	
10	John Holland.....	29	1905	
11	Ed. Runner.....	24	1911	
12	Jas. Hourahan.....	73	1875	
14	John Hayes.....	60	1875	
15	Jas. Spears.....	54	1882	
17	Wm. Garneau.....	38	1898	
18	Chs. F. Martin.....	44	1890	
19	Wm. White.....	53	1884	
20	Thos. Hayes.....	51	1884	
21	Thos. Reyno.....	50	1884	
22	Frank Mackay.....	38	1898	
23	Henry Latter.....	42	1890	

OUT PORTS.

Jas. Smith, Margaret's Bay.....	68	1879
David Palmer, Ship Harbour.....	62	1892
R. Martin, Sheet Harbour.....	62	1883
C. Hilchey, Tangier.....	73	1887
Geof. Gilbert, Musquodoboit.....	59	1881
M. G. Marks, Ship Harbour.....	53	1880
W. Berrigan, Tangier.....	65	1900
Wm. Smith, Necum Teuch.....	47	1907

Names of apprentice pilots.—None.

White flag ships licensed for the year.—None.

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STATEMENT OF VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

No.		Tonnage.	Amt. paid.
1,419	British steam vessels.....	{ 3,314,799	\$ 34,653 70
136	Foreign sailing vessels.....		
183	Foreign steam vessels.....	{ 235,998	4,655 70
39	Foreign sailing vessels.....		
		\$3,550,797	\$39,309 40

Statement of pensions or relief fund.....	\$ 22,212 36
Investments, Dominion Stock—	
“ Savings Bank.....	10,026 64
“ Royal Bank, Savings.....	4,509 58
“ Royal Bank, Cash.....	841 19
	\$ 37,589 77

DETAILED STATEMENT OF RECEIPTS AND EXPENDITURE.

RECEIPTS.	EXPENDITURE.
January 1, Balance..... \$5,225 76	Dec. 31. Paid pilots..... \$35,747 80
Dec. 31, Total receipts pilotage..... 38,072 10	To superannuation..... 5,683 01
Commission..... 81 70	Boat inspection..... 40 00
Outward pilotage..... 1,326 60	Rent..... 425 00
	W. Baker..... 152 00
	Legal expenses..... 35 00
	Books and stationery.... 29 00
	Electric fans..... 10 50
	Electric light..... 12 24
	Expenses Sec'y Ottawa..... 117 50
	Office boy..... 106 00
	Office cleaning..... 55 00
	Sec'y salary..... 999 96
	Refund pilotage..... 9 60
	Auditor..... 50 00
	Examining apprentices.. 20 00
	Stenographer..... 27 50
	Telephone..... 45 00
	Telephone tolls..... 5 45
	Sundries..... 44 91
	Balance..... 1,090 69
\$44,706 16	\$44,706 16

PILOTAGE BOATS.

Number or name:	Statement of cost of maintenance:
Numbers 1 & 2.....	Boats owned and managed by pilots themselves. This office has nothing to do with them beyond inspection twice a year.
Navigation in this port open all the year.	

FRANK J. PHELAN,
Secretary.

Pilotage Rates.

	Inward.	Outward.
Vessels under 200 tons.. . . .	\$ 9 60	\$ 6 00
Vessels 200 tons under 300 tons.. . . .	13 20	8 40
“ 300 “ 400 “	16 80	10 80
“ 400 “ 500 “	19 20	12 00
“ 500 “ 600 “	21 60	13 20

Over 600 tons an additional 60 cents for every 100 tons (or fractional part thereof) above 600 tons inwards, and thirty cents outwards.

Outward pilotage for all vessels of 200 tons and upwards to be compulsory.

Canadian registered vessels of 120 tons and under free.

The rates for moving vessels in the harbour of Halifax by a pilot licensed for the Halifax Pilotage District when a pilot is employed for the purpose shall be as follows:—

All vessels under 2,000 tons.. . . .	\$ 5 00
All vessels over 2,000 tons.. . . .	10 00

To Bedford Basin and Lawlor's Island—

All vessels under 1,000 tons.. . . .	\$10 00
All vessels over 1,000 tons.. . . .	20 00

Vessels stopping at Quarantine are not subject to charge for moving unless the detention exceeds 12 hours.

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APPENDIX No. 54.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF INVERNESS SOUTHERN, N.S., FOR THE YEAR ENDING DECEMBER 31, 1912.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Captain W. B. Reynolds.....	O.C. 15 Apr., 1904.....	None.
J. J. Hennessey.....	O.C. 15 Apr., 1904.....	"
John A. McDonnell.....	O.C. 15 Apr., 1904.....	"

No pilots appointed until now.

No white flag ships licensed during the year.

No vessels piloted during the year.

W. B. REYNOLDS,

Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—
 Rates of pilotage not in force at present.

APPENDIX No. 55.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF LOUISBURG, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS

Names.	Appointed.	Changes.
Thomas Townsend.....	O. C. 10 Sept., 1898.....	None
Capt. W. W. Lewis.....	O. C. 10 Sept., 1898.....	
Michael Pope.....	O. C. 25 Feb., 1907.....	
John Dickson.....	O. C. 26 Sept., 1908.....	
Daniel Townsend.....	O. C. 28 May, 1911.....	
Thomas Townsend, Secretary.....	O. C. 18 Apr., 1907.....	

NAMES OF PILOTS, AGE AND EARNINGS.

No.	Names.	Age.	Appointed.	Earnings.
				\$ cts.
1	Pierce Pope.....	37	May 7, 1910	408 90
2	Thos. Wilcox.....	47	May 7, 1911	408 90
3	John Power.....	49	May 7, 1910	408 90
4	John E. Tutty.....	51	Dec. 8, 1911	408 90
5	W. H. Townsend.....	65	May 7, 1911	408 90
6	Wm. Williams.....	41	May 7, 1910	408 90
7	Lewis Tutty.....	41	May 7, 1911	408 90
8	John Kelly.....	49	Mar. 1, 1911	408 90
				3,271 20

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

No.		Tonnage.	Amount Paid.
			\$ cts.
74	British steam vessels.....	138,559	2,389 00
11	British sailing vessels.....	1,451	70 40
40	Foreign steam vessels.....	79,552	1,309 00
2	Foreign sailing vessels.....	642	32 00
		220,204	3,700 40

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RECEIPTS AND EXPENDITURES.

RECEIPTS.

From British steamships.....	\$ 2,389 00
From British sail ships.....	70 40
From foreign steamships.....	1,309 00
From foreign sail ships.....	32 00
Taking orders to ships.....	70 00
Docking ships.....	18 00
	<hr/>
	\$ 3,888 40

EXPENDITURE.

Commission and stationery.....	\$ 155 00
Other bills to maintain service.....	462 20
Paid pilots each (\$408.90).....	3,271 20
	<hr/>
	\$ 3,888 40

Pilotage boats.
8 boats ready for use.
Navigation in this port never closes.

THOS. TOWNSEND,
Secretary.

Approved: W. W. LEWIS,
Chairman.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

			Inward.	Outward.
On sail and steamship of	80 tons to	120.....	\$ 4 00	\$ 3 00
"	120 "	200.....	6 00	4 00
"	200 "	300.....	7 00	5 00
"	300 "	400.....	8 00	6 00
"	400 "	500.....	10 00	8 00
"	500 "	700.....	11 00	9 00
"	700 "	1,000.....	13 00	11 00
"	1,000 "	1,500.....	15 00	12 00
"	1,500 "	2,000.....	16 00	14 00
"	2,000 "	2,500.....	18 00	16 00
"	2,500 "	3,000.....	22 00	18 00

APPENDIX No. 56.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF MIRAMICHI, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
John C. Miller.....	O. C. 12 Apr., 1893.....	None.
Wm. B. Snowball.....	O. C. 12 Apr., 1893.....	
Ernest Hutchison.....	O. C. 12 Apr., 1893.....	
Allan Ritchie.....	O. C. 12 Apr., 1893.....	

NAMES OF PILOTS, AGE AND EARNINGS.

No.	Names.	Age.	Appointed.	Earnings.
2	Louis Jimmo.....	57	May 29, 1875.....	519 11
6	Francis Martin.....	77	Jan. 12, 1856.....	519 11
7	Maxime Martin.....	66	July 10, 1869.....	519 11
10	Alexander Wilson.....	65	July 10, 1871.....	519 11
11	Robert J. Walls.....	60	July 12, 1870.....	519 11
22	William Walls, Sr.....	57	Apr. 20, 1875.....	519 11
27	James Nowlan.....	60	Apr. 28, 1877.....	519 11
29	George Sutton.....	60	Apr. 28, 1878.....	519 11
30	James A. Nowlan.....	56	Apr. 28, 1878.....	519 11
31	George T. Tait.....	54	June 21, 1878.....	519 11
32	Joseph Jimmo.....	56	Apr. 28, 1879.....	519 12
33	James McCallum.....	67	Apr. 28, 1880.....	519 12
35	John Martin.....	52	Apr. 28, 1880.....	519 12
36	Asa Walls.....	52	June 23, 1880.....	519 12
37	William Walls, Jr.....	54	May 20, 1882.....	519 12
38	John Nowlan.....	55	June 21, 1882.....	519 12
41	Michael J. Jimmo.....	44	Nov. 1, 1889.....	504 12
42	Geo. M. Nolan.....	55	Nov. 2, 1855.....	514 12
44	Geo. Savoy.....	67	Mar. 10, 1867.....	504 12
				9,828 18

No apprentice pilots in this Authority.
No white flat ships licensed during the year.

VESSELS WHICH PAID PILOTAGE DURING THE YEAR.

No.	Tonnage.	Amount Paid.
		\$ cts.
32	British steam vessels.....	43,666 3,555 89
28	British sailing vessels.....	6,503 1,357 41
30	Foreign steam vessels.....	40,357 3,743 72
19	Foreign sailing vessels.....	11,393 1,071 16
109	101,919	9,128 18

RECEIPTS AND EXPENDITURES.

EXPENDITURES.

In ward pilotage.....\$	4,430 05	Sundries for pilots' office.....\$	2 64
Outward pilotage.....	5,048 13	Funeral exp. pilot J. McCallum.....	100 00
Removals.....	250 00	Fares, Steam Navig. Co.....	7 50
R. J. Walls, payment as pilot master.	100 00	Rent, pilots' office one year.....	24 00
		Refund, Sch. Unity inward.....	5 00
		Rent warehouse one year	10 00
		Salt, hardware, &c.....	4 01
		Late pilot McCallum's share in schoo- ners.....	127 58
		Stationery, pilots' office...	3 98
		Printing pilot forms.....	2 25
		Horse-hire, pilots.....	1 00
		Sailsfitting outfit, &c., Sch. Princess Louise.....	155 73
		Sails, fitting out, &c., Sch. Senator Snowball.....	285 44
		Wages and provisions Sch. Princess Louise.....	395 47
		Wages and provisions Sch. Senator Snowball.....	467 44
		Secretary, postage and stationery....	3 80
		Secretary, Commission at 3 p.c. on \$9,828 18.....	294 85
		Paid 16 pilots.....	7,937 49
\$	9,828 18		\$ 9,828 18

Pilotage Boats.	Cost of Maintenance.	
Princess Louise.....	Wages, provisions, fitting out and supplies.....	551 20
Senator Snowball.....	Paid by 3 pilots independent of club.....	752 88
Mabel.....		

Navigation at this port began April 26th, 1911, and closed on December 2, 1912.

BYRON N. CALL,

Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

When inward bound, \$2.25 per foot, and in addition to the above for all vessels propelled wholly or in part by steam, 2 cents per reg. ton.

When outward bound, \$2 per foot, and in addition to the above for all vessels propelled wholly or in part by steam, 2 cents per reg. ton.

For the removal and mooring of vessels of over 300 tons, \$4, and where the distance of removal exceeds four miles, 50 per cent additional on the above rate.

Removal within a distance of one mile is not compulsory, but when pilots are requested to perform this service the charge is \$4.

Steam tug boats towing one or more barges with cargo, inward, may depart outward after having paid full pilotage for the tug and barges inward, without paying any outward pilotage, except on the tug.

Compulsory pilotage on all vessels over 119 registered tons.

APPENDIX No. 57.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF MINAS,
N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Captain Stephen Smith.....	O. C. Apr. 9, 1907.....	Captain W. R. Potter a Commissioner died and was replaced by Captain Wm. McCulloch.
Brenton Borden.....	O. C. Apr. 9, 1907.....	
Captain R. Lawrence.....	O. C. Feb. 26, 1910.....	
Thomas A. Masters.....	O. C. Feb. 26, 1910.....	
Captain William McCulloch.....	O. C. Apr. 24, 1911.....	

No pilots have been appointed yet. This Authority is awaiting to be exempted to grant certificates of pilotage to masters and mates of Canadian registered vessels so that pilots may be appointed to pilot the vessels in and out the port.

No white flag ships licensed during the year.
No pilotage dues collected

BRENTON BORDEN,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

	Inward. Free.	Outward. Free.
Canadian vessels of 120 tons and under.....		
From the pilot boat anchored in the Basin of Minas to Walton and anywhere between Walton to Tenesape, to Cheverie, to Summerville, to Avondale, to Millers Creek, to Wentworth, to Windsor, to Hantsport, to Avonport, to Horton Landing, to Wolfville, to Port Williams, to Picket Wharf, to Canning, to anchorage below or above Horton Bluff light, on vessels under sail, barges in tow or steamers—		
On vessels over 120 tons and under 200 tons.....	\$9 60	\$ 6 00
“ 200 “ 300	13 20	8 40
“ 300 “ 400	16 80	10 80
“ 400 “ 500	19 20	12 00
“ 500 “ 600	21 60	13 20
Over 600 tons, inwards, an additional three cents for every ton over 600 tons; outwards, an additional two cents for every ton over 600 tons.		
From the pilot boat anchored in Minas Basin to Pereaux, to Kingsport and Mill Creek—		
On vessels of 120 tons and under.....	Inward. Free.	Outward. Free.
On vessels under sail, barges in tow or steamers—		
Over 120 tons and under 200 tons.....	\$8 00	\$ 5 00
“ 200 “ 300 “	11 00	7 00
“ 300 “ 400 “	14 00	9 00
“ 400 “ 500 “	16 00	10 00
“ 500 “ 600 “	18 00	11 00
Over 600 tons, inward, an additional two cents for every ton above 600 tons; outwards, an additional two cents for every ton above 600 tons.		

APPENDIX No. 58.

TO MONTREAL.

REPORT OF THE CORPORATION OF PILOTS FOR AND ABOVE THE
HARBOUR OF QUEBEC, FOR THE YEAR ENDING DECEMBER 31, 1911.

President of the Corporation—Joseph P. Hurteau.

Secretary of the Corporation—Albrie Angers.

The Committee—Barthelemi Arcand, J. C. Gauthier, D. J. Perreault.

Superintendent of Pilots—Captain J. J. Riley.

Assistant Superintendent—J. Omer Michaud.

Manager—Louis Pinoteau.

The offices in Montreal are situated on the water front at No. 223 Commissioners Street.

Number of pilots..... 50

	In.	Out.
Number of trips to Montreal.....	865	877
Number of trips intermediate ports.....	63	73
Total number of trips.....	928	950

Total earnings to Montreal.....	\$83,898 18
Total earnings, intermediate ports.....	4,030 37

Total earnings of branch pilots.....	\$87,928 55
The largest amount earned during the season of 1911 by any one branch pilot was.....	\$2,551 55
The smallest amount was.....	743 80
The number of branch pilots assigned to special service was.....	40
The number of men on Tour de Role was.....	10
The amount earned by the forty special service men was.....	\$75,964 19
The amount earned by the ten Tour de Role men was.....	11,964 36
Average for each special service pilot.....	1,899 10
Average for each Tour de Role pilot.....	1,196 43

APPRENTICE PILOTS OF THE CORPORATION.

Names.	Age.	Date of License.
1. Mayrand, Joseph.....	30	Aug. 16, 1899
2. Briere, Jules.....	25	Dec. 30, 1903
3. DeVillers, Napoleon.....	25	Dec. 30, 1903
4. Gosselin, Achille.....	26	Dec. 30, 1903
5. Marchand, Armand.....	25	Dec. 30, 1903
6. Paquette, Donat.....	27	Dec. 30, 1903
7. Lacroix, Edmond.....	26	Dec. 30, 1903
8. Houde, Thomas.....	25	Dec. 30, 1903
9. Marchand, Cyprien.....	25	Dec. 30, 1903
10. Naud, Emilien.....	25	Dec. 30, 1903
11. Perreault, Jos. Origene.....	25	Nov. 1, 1906
12. Perron, Oscar.....	24	May 15, 1907
13. DeVillers, Jos. Edmond.....	24	June 15, 1907
14. Beaudry, Francois.....	21	May 5, 1908
15. Leveille, Horace.....	20	May 5, 1908
16. Gauthier, Andre.....	19	Sept. 17, 1908
17. DeVillers, Arthur.....	21	May 10, 1909
18. Lavigne, Gaston.....	20	May 12, 1909
19. deLachevrotiere, Ch. Auguste.....	21	Aug. 31, 1909
20. Halle, Alphonse.....	18	Oct. 14, 1909

3 GEORGE V., A. 1913

Number and names of selected pilots—

- | | |
|------------------------|---------------------|
| 1. Joseph Mayrand. | 5. Armand Marchand. |
| 2. Jules Briere. | 6. Donat Paquette. |
| 3. Napoleon deVillers. | 7. Edmond Lacroix. |
| 4. Achille Gosselin. | |

Number of trips made by selected apprentice pilots with branch pilots on ocean steamers, during the year..... 393

Pensioners and total amount paid their widows—

Pensioners..... 34
Total amount paid..... \$1,745 95

Number of vessels reported in office, tonnage, crews and number of passengers inward—

Sea-going vessels..... 724
Lake steamers..... 237
Schooners..... 35
Barges, tugs and steam yachts..... 21

Total..... 1,117

Total tonnage of these vessels..... 2,621,484

The number of masters and crews was..... 65,339

Number of passengers inward..... 89,682

There were also 131 lake steamers that came into the still waters of the harbour without reporting to the office.

Pilots pensioned during the year..... 1

JAMES J. RILEY,

Superintendent of Pilots.

December 31, 1911.

MONTREAL PILOTAGE OFFICE.

By-law 44 of the By-laws of the Montreal Pilotage District.

By-law 44.—From and after the coming into force of the present by-laws, the following fees shall be payable for pilotage between the harbours of Montreal and Quebec and between the several places therein mentioned.

PILOTAGE RATES.

From Father Point to Quebec.	PER FOOT.	
	Upwards.	Downwards
May 1st to November 19th.....	\$3 87	\$3 40
November 10th to November 19th.....	4 95	4 46
November 19th to March 1st.....	6 02	5 54
March 1st to May 1st.....	4 41	3 93

MONTREAL TO QUEBEC.

From the harbour of Quebec to Portneuf and the opposite side of the river St. Lawrence, or below Portneuf and above the harbour of Quebec:—

For the pilotage of any vessel in tow, or propelled by steam (except as herein after mentioned) for each foot of draught of water—

Upwards..... \$0 50
Downwards..... 0 50

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water—

Upwards..... 0 62½
Downwards..... 0 62½

For the pilotage of any vessel under sail, for each foot of draught of water—

Upwards..... 1 05
Downwards..... 0 70

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From the harbour of Quebec to Three Rivers and the opposite side of the river St. Lawrence, or any place above Portneuf and below Three Rivers:—

For the pilotage of any vessel in tow, or propelled by steam (except as herein-after mentioned), for each foot of draught of water—

Upwards.....	\$1 50
Downwards.....	1 50

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water—

Upwards.....	1 75
Downwards.....	1 75

From Montreal to Three Rivers.....

1 75

From Three Rivers to Quebec.....

1 75

For the pilotage of any vessel under sail, for each foot of draught of water—

Upwards.....	2 60
Downwards.....	1 90

From the harbour of Quebec to Sorel and the opposite side of the river St. Lawrence, or any place above Three Rivers and below Sorel:—

For the pilotage of any vessel in tow, or propelled by steam (except as herein-after mentioned), for each foot of draught of water—

Upwards.....	\$1 50
Downwards.....	1 50

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water—

Upwards.....	\$1 87½
Downwards.....	1 87½

For the pilotage of any vessel under sail, for each foot of draught of water—

Upwards.....	3 15
Downwards.....	2 10

From the harbour of Quebec to the harbour of Montreal, or to any place above Sorel and below the harbour of Montreal:—

For the pilotage of any vessel in tow, or propelled by steam (except as herein-after mentioned), for each foot of draught of water—

Upwards.....	2 00
Downwards.....	2 00

For the pilotage of any sea-going vessel propelled by steam, for each foot of draught of water—

Upwards.....	2 50
Downwards.....	2 50

For the pilotage of any vessel under sail, for each foot of draught of water—

Upwards.....	4 20
Downwards.....	2 80

From the harbour of Montreal to Sorel or to any place above Sorel and below Hochelaga, and from Sorel, or to any place above Sorel and below Hochelaga, to the harbour of Montreal, for each foot of draught of water for each such pilotage—

Upwards.....	1 00
Downwards.....	1 00

For the removal of any vessel from one wharf to another, within the limits of the harbour; or from any of the wharfs into the Lachine canal; or out of the said canal to any of the wharfs in the harbour; or from the foot of the current; or from Longueuil into the harbour; or from the harbour to the foot of the current or to Longueuil—for each such service

5 00

JAMES J. RILEY,

Superintendent of Pilots.

APPENDIX No. 59.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF
NANIMO, B.C., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS

Names	Appointed	Changes
James S. Knarston.....	O. C. 17 Apr., 1900.....	
Thomas O'Connell.....	O. C. 17 Apr., 1900.....	
Henry B. Shaw.....	O. C. 17 Apr., 1900.....	
Tully Boyce.....	O. C. 17 Apr., 1900.....	
Fraser Wm. C.....	O. C. 30 Sept., 1910.....	

NAMES, AGE OF PILOTS AND EARNINGS.

No.	Names	Age	Appointed	Earnings.
1	James Christensen.....	70	Feb. 1891	\$ 2,895 44
2	James E. Butler.....	51	Nov. 1894	2,895 44
3	Wm. D. Owen.....	45	Oct. 1898	2,895 44
4	Albert F. Yates.....	59	Sept. 1900	2,895 44
5	Josiah Goss.....	47	Aug. 1903	2,895 44
6	John C. Foote.....	51	Apr. 1907	2,895 44
7	John Wm. Butler.....	41	Oct. 1907	2,895 44

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number		Tonnage	Amount Paid
137	British steam vessels.....	441,724	\$ 16,556 74
1	British sailing ".....	1,550	41 50
321	Foreign steam ".....	262,492	13,044 53
10	" sailing ".....	16,500	557 09
9	Foreign barges.....	12,000	218 69
478		734,266	30,418 55

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RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURE.	
Dues on British steamers.....	\$ 16,556 74	Victoria pilot station expenses—	
“ “ sailers.....	41 50	Boatman's wages.....	\$ 1,080 00
“ foreign steamers.....	13,044 53	Supplies.....	391 79
“ “ sailers.....	557 09	Telephone, telegraph.....	342 20
“ barges.....	218 69	Mileage books.....	600 00
		Miscellaneous.....	101 85
			\$ 2,515 84
		Nanaimo pilot station expenses—	
		Boat and buggy hire.....	479 50
		Telephone, telegraph.....	143 54
		Hotel account.....	719 00
			1,342 04
		General expense account—	
		Pilots travelling and personal expenses.....	3,920 00
		Commission to Collectors.....	388 40
		Exchange on drafts.....	18 10
		Refunds.....	40 76
		Miscellaneous.....	21 20
			\$ 4,388 46
		Pilot office expenses—	
		Salaries.....	600 00
		Rent.....	192 00
		Fuel, light, telephone....	125 41
		Printing, postage, stationery.....	115 10
			\$ 1,064 11
		Miscellaneous.....	31 60
		Reserve fund.....	840 00
	<u>\$ 30,418 55</u>		<u>\$ 30,418 55</u>
Pilotage Boats—		Cost of maintenance—	
1. M. E. Smith.....		Wages.....	\$ 1,080 00
		Gasoline repairs and other supplies	391 79
			\$ 1,471 79

Navigation in this port is always open.

TULLY BOYCE,

Secretary.

December 31, 1911.

The rates of pilotage for the time being in force in this district including the amounts and description of all charges made in the respect of pilotage:—

Regular pilotage rates are one (1) cent per registered ton, and one dollar (\$1) per foot draught.

Tow boats, fishing boats and small trading vessels are charged a flat rate of from ten dollars (\$10) to twenty dollars (\$20), according to size.

Barges carrying two thousand tons and over are charged twenty dollars (\$20) under two thousand tons, and over one thousand (1,000) tons, fifteen dollars (\$15); under one thousand (1,000) tons, ten dollars (\$10).

APPENDIX No. 60.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF NEW WESTMINSTER, B.C., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed	Changes.
J. C. Armstrong.....	O. C. Feb. , 1904.....	F. P. Maxwell, Secretary was replaced by D. H. Macgorran.
J. B. Kennedy.....	O. C. Mar. 28, 1904.....	
Joseph Mayers.....	O. C. Oct. 18, 1909.....	

No.	Name of Pilot.	Age.	Appointed.
1	Captain F. S. Carter.....	44	July 1, 1911.

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

Number		Tonnage	Amount paid
.....	British steam vessels.....	20,975	\$ 723 99
.....	“ sailing “	3,535	136 20
		\$ 24,510	\$ 860 19

The only pilot of this Authority is paid by the Corporation of the City of New Westminster at the rate of \$150.00 a month, and all fees collected for pilotage are turned over by the Pilotage Authority to the City, except 10 per cent off same, to defray the expenses of the pilot and office.

Navigation at this port is always open.

D. H. MACGORRAN,
Secretary.

December 31, 1911.

The rates for pilotage dues for the time being in force this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

\$1 for foot draught, 1 cent per ton registered tonnage (net).

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APPENDIX No. 61.

REPORT OF PILOTAGE COMMISSIONERS FOR THE PILOTAGE DISTRICT
OF NEW LONDON, P.E.I., FOR THE YEAR ENDING DECEMBER 31, 1911.

NAMES OF PILOTAGE COMMISSIONERS.

Names.	When Appointed.	Change.
Thos. Reid.....	1896	Jas. Smith (deceased)
Jos. Harding.....	1896	
Capt. D. Sutherland.....	1896	
W. C. Orr.....	1896	

NAMES OF PILOTS.

Names.	Age.	When appointed.	Earnings.
Neil McLeod.....	56	1873	\$ 125 00

Apprentice pilots.—None

White flag ships licensed for the year.—None.

STATEMENT OF VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

	Tonnage.	Earnings.
British steam vessels, Dredge Montagne and Plant.....		\$ 90 00
British sailing vessels.....	350	25 00
British steam vessels, Steamer Liscar.....		10 00
British sailing vessels.....		
		\$ 125 00

No pension fund.

RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURE.	
Vessels pilotage fees.....	\$ 125 00	Paid pilots.....	\$ 100 00
		Secretary.....	25 00
	\$ 125 00		\$ 125 00

Pilot boat No. 5, statement of cost of maintenance, \$25.

Navigation in this port opens 20th April and closes about 27th December.

W. C. ORR,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

Harbour pilotage, 5 cents per ton; river pilotage, \$2, and each shift \$2.

APPENDIX No. 62.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF PUG-
WASH, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Elias King.....	O.C. Apr. 29, 1895	None.
William Colburn.....	O.C. May 29, 1901	"
Alfred King.....	O.C. Sept. 20, 1904	"
Ephraim A. Murray.....	O.C. Feb. 12, 1903	"
Gordon McDonald.....	O.C. Apr. 24, 1911	"
Elias King, Secretary.....	O.C. July 15, 1905	"

NAMES, AGE OF PILOTS AND EARNINGS.

No.	Names.	Age.	Appointed.	Amt. Earned.
1	Neil McKeiver.....	49	1890	\$ 79 89
2	Clarence Reid.....	58	1891	
3	George Heather.....	69	1911	69 89
4	Alfred E. Seaman.....	33	1899	81 89
5	E. Russell Heather.....	30	1908	69 89
6	George Tuttle King.....	32	1903	6 00
				\$307 56

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

No.	Tonnage.	Amt. Paid
2 British steam vessels	2,565	\$ 25 67
9 British sailing vessels.....	750	28 00
2 Foreign steam vessels	3,531	163 89
	6,846	\$ 217 56

RECEIPTS AND EXPENDITURE

RECEIPTS	EXPENDITURE.
Fees on pilotage	Paid to pilots
\$ 307 56	Paid to secretary.....
	14 00
\$ 307 56	\$ 307 56

Pilotage boats, 5—*Nimrod*, *Venture*, *Effie Howard*, *Ida*, *Leader*.

Navigation in this port opens on or about April 20 and closes 25th November or about.

ELIAS KING,
Secretary.

December 31, 1911.

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The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

			Inwards	Outwards
Vessels	80 and under	140 tons	\$ 6 00	\$ 5 00
"	140	230 "	8 00	7 00
"	230	300 "	10 00	9 00
"	300	400 "	14 00	12 00
"	400	500 "	16 00	14 00
"	500	600 "	17 00	15 00
"	600	700 "	18 00	16 00
"	700	800 "	19 00	17 00
"	800	900 "	20 00	18 00
"	900	1,000 "	21 00	19 00

Vessels over 1,000 tons shall pay $2\frac{1}{2}$ cts. per ton inward; 2 cts. outward on additional tonnage.

Vessels under 80 tons accepting pilots shall pay 5 cts per ton inward and 4 cts per ton outward

Vessels over 1,000 tons register after entering the harbour and being safely moored by a pilot, employing a pilot to be moved again to a loading berth dock or wharf from her first moorings, shall pay to the pilot so employed the sum of \$5.

Vessels under 1,000 tons and over 300 shall pay \$3.

APPENDIX No. 63.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF PICTOU, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

NAMES OF COMMISSIONERS

A. C. McDONALD, JAS. YERSTON, D. A. BARRY, WM. FRASER.

NAMES, AGE OF PILOTS, WHEN APPOINTED AND EARNINGS

No.	Names	Age	When Appointed	Earnings
1	Wm Cooke	74	1874	\$ 222 24
2	Chas Cooke	64	1874	503 65
3	Angus Smith	55	1889	473 68
4	McGregor Fraser	44	1899	427 18
5	Wm McPherson	37	1903	355 03
6	Willard Fraser	33	1903	294 87
				\$2,276 65

No apprentice pilots in this Authority

White flag ships licensed during the year—SS. Cascapedia, amount paid, \$40 00

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR

	Tonnage	Amt paid
British steam vessels	15,885	\$ 315 00
Foreign steam vessels	49,576	1,961 65
	65,461	\$ 2,276 65

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RECEIPTS AND EXPENDITURES

RECEIPTS		EXPENDITURES	
Capt Lachance, SS Cascapedia	\$ 40 00	Paid pilots	\$ 2,276 65
Pilot bonds	6 00	Secretary's salary	200 00
Pilot fees	2,299 65	Balance due 1910	824 77
Balance due	955 77		
	<u>\$ 3,301 42</u>		<u>\$ 3,301 42</u>
Pilotage boats		Cost of Maintenance	
No 2 Bertha D.	Yearly		\$ 100 00
No 5 Maggie Ester.	"		100 00
			<u>\$ 200 00</u>

Navigation opened April 15th and closed December 15th

DODD DWYER,
Secretary.

December 31, 1911.

RATES OF PILOTAGE

	Inward	Outward
Vessels of 120 tons to 140	\$ 6 00	\$ 4 00
" 140 " 200	10 00	6 00
" 200 " 300	12 00	8 00
" 300 " 400	14 00	9 00
" 400 " 500	15 00	10 00
" 500 " 600	16 00	11 00
" 600 " 700	17 00	12 00
" 700 " 800	18 00	13 00
" 800 " 900	19 00	14 00
" 900 " 1,000	20 00	15 00

Vessels of 1,000 and upwards $2\frac{1}{2}$ cents inwards and 2 cents outwards. All vessels under 80 tons \$4. inwards and \$2 outwards

Docking and moving vessels from anchorage in harbour, \$4.

APPENDIX No. 64.

REPORT OF THE CORPORATION OF PILOTS FOR AND BELOW THE
HARBOUR OF QUEBEC, FOR THE YEAR ENDING DECEMBER 31, 1911.

RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURES.	
Balance of 1910	\$ 859 79	Interest paid on loan	\$ 120 00
Reserve fund	2,000 00	Rental, Chouinard estate	500 00
Customs of Montreal	7,809 50	" City of Quebec	450 00
" Three Rivers	1,405 10	" Taxes of the city	222 25
" Chicoutimi	1,739 10	General expenses	3,776 15
" Sorel	1,127 00	Expenses of pilots	1,763 65
" St. Thomas	157 17	Indemnity to Directors	600 00
" Rimouski	163 26	Insurance	26 95
" Riviere-du Loup	204 36	Legal advisers	894 45
Interest, Banque Nationale	183 30	Pilotage paid over twice and re-	
Fines	40 00	mitted	1,883 75
Lost time	754 08	Pilots pensioned	7,000 00
Rental, Department	896 00	Salaries of employees	1,750 00
Board, Pointe-au-Pic	2,256 51	Salary of caretaker	500 00
" remitted by Directors and pilots	115 17	Board at Pointe-aux-Peres	2,495 16
Pilotage collected at Quebec	131 136 38	Decayed pilots' fund	10,062 95
		Dividends	114,230 00
		Reserve fund	3,000 00
		Balance	1,771 41
	<u>\$150,846 72</u>		<u>\$ 150,846 72</u>

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STATEMENT OF MONEYS RECEIVED AND EXPENDED BY THE CORPORATION OF
PILOTS FOR THE DECAYED PILOT FUND OF QUEBEC DURING THE YEAR.

RECEIPTS.		EXPENDITURES.	
Balance of 1910.....	\$ 8,662 54	By pensions.....	\$14,513 99
Contribution of pilots.....	10,062 95	Assistance.....	210 00
Interests on investments.....	4,526 22	Salaries.....	550 00
Debentures of Dorchester Bridge remitted.....	21,600 00	General expenses.....	20 00
Interests from savings banks.....	537 19	Deposits in savings banks.....	30,531 75
St. Furgence fabric balance on capital remitted.....	500 00	Balance on hand.....	63 16
	<u>\$ 45,888 90</u>		<u>\$ 45,888 90</u>

STATEMENT OF FUND.

Money loaned.....	\$ 70,700 00
“ in saving banks.....	30,531 75
“ on hand.....	63 16
	<u>\$ 101,294 91</u>

PENSIONERS AT THE EXPENSE OF THE FUND.

12 pilots at.....	\$ 300 00		\$ 4,771 00
2 pilots at.....	270 00		483 51
11 pilots at.....	216 00		2,376 00
1 pilot at.....	176 00		73 34
27 widows at.....	116 00		2,944 64
12 widows at.....	112 00		1,171 48
5 widows at.....	110 00		550 00
6 widows at.....	106 00		636 00
6 widows at.....	100 00		500 00
4 widows at.....	96 00		384 00
1 widow at.....	76 00		76 00
1 widow at.....	68 00		68 00
1 widow at.....	64 00		64 00
1 widow at.....	70 00		38 84
1 widow at.....	116 90		42 24
12 children at.....	30 00		334 94
109 pensioners.			<u>\$ 14,513 99</u>

Pilotage fees collected.....	\$ 143,741 87
General expenses including 7% in Pension fund.....	31,845 31
Leaving a net balance of.....	<u>\$ 111,896 56</u>
This sum divided among the pilots gave to each a dividend of.....	\$ 1,515 00
957 British steamers paid.....	\$ 140,703 19
49 Foreign “.....	3,038 68
In all.....	<u>\$ 143,741 87</u>

Number of pilots on active service.....	77
Died during the year.....	1
Pensioned during the year.....	2
Number of apprentice pilots.....	22
Number of pilotages effected by pilots.....	2,029
Number of trips made by apprentice pilots.....	660

OFFICERS OF THE BOARD.

Adjutor Lachance, President;
Alphonse Pouliot, Director;
Onesime Noel, Director.
Joseph Emile Couillard, Director.
Eugene Anctil, Director.

Joseph Pouliot, Director.
F. X. Dion, Secretary-Treasurer.
Ph. Lamontagne, Assistant Treasurer.
Alfred Larochelle, Superintendent.

TABLE 1.—Rates of pilotage for the Harbour of Quebec and below, for each foot of draught water.

PILOTAGE RATES.

From	To	From May 1 to Nov. 10	From Nov. 10 to Nov. 19	From Nov. 19 to Mar. 1	From Mar. 1 to May 1
Father Point or any place below the anchorage of Brandy Pots, off Hare island.....	Anchorage or mooring ground in the Basin or Harbour of Quebec.....	\$ 3 87	\$ 4 95	\$ 6 02	\$ 4 41
The Anchorage ground at the Brandy Pots off Hare Island or any place above the said anchorage ground and below St. Rock's Point.....	do	$\frac{3}{4}$ of this sum.	$\frac{3}{4}$ of this sum.	$\frac{3}{4}$ of this sum.	$\frac{3}{4}$ of this sum.
St. Rock's Point or any place above this point and below the Pointe-aux- Pins or Crane Island or any place below St. Patrick's Hole.....	do	$\frac{1}{2}$ do	$\frac{1}{2}$ do	$\frac{1}{2}$ do	$\frac{1}{2}$ do
The anchorage or mooring ground in the Basin or Harbour of Quebec.....	Father Point or the place where the pilot shall be discharged in the river below Quebec.....	\$ 3 40	\$ 4 46	\$ 5 54	\$ 3 93
From	To	—			
Any wharf in the harbour of Quebec between Pointe-a Carcy below, and the West End of the Allan's Wharf above both inclusive.....	Any other wharf within said limits.....	\$ 2 50			
Any place in the Harbour of Quebec, not being a wharf within the above mentioned limits.....	Any other place in the said harbour not being a wharf within the said limits...	5 00			

SESSIONAL PAPER No. 21

PILOTS, BY WHOM EMPLOYED, AND THE OTHERS ARE THE TOUR-DE-ROLE FOR 1911.

BRANCH PILOTS FOR AND BELOW THE HARBOUR OF QUEBEC, ACCORDING TO SENIORITY.

Number of Pilotages Affected.

No.	Name.	Employed by	Age.	Residence.	No. of Pilotages Effected.
1	Ray, Baquet dit Lamontagne	C.P.R.	66	Notre Dame, Levis	35
2	Chs. Alarie Raymond		63	Quebec	24
3	Victor Vézina	Thompson Line	66	Quebec	26
4	Pensioned		65	Quebec	
5	Joseph G. Dupil	Allan Line	64	Quebec	38
6	Pierre Pepin dit Lachance		62	Montreal	23
7	Isiode Noel		61	St. John, Orleans	25
8	Théophile Corriveau		64	Quebec	24
9	Elzéar Godbout	Dom. Coal	63	Quebec	22
10	Pensioned		66	Montreal	
11	Achille Trefflé Simard	Head Line	60	St. Joseph, Levis	34
12	Narcisse Lavoie		62	Ste. Luce, Rimouski	25
13	Joseph Emilio Couillard	Director	60	Quebec	
14	Louis Albert Royer		66	Quebec	23
15	Onésime Noel	Director	59	St. John, Orleans	7
16	Died 14 Jan.		61	Quebec	23
17	Frs.-X. Demuele	Manchester Line	59	St. John, Orleans	39
18	Louis Honoré Lapierre		61	Notre Dame, Levis	24
19	Jos. Eug. Lachance		57	Quebec	32
20	J. Théophile St. Laurent	Dominion Line	60	Quebec	49
21	Joseph Victor Gourdeau		64	Ste. Petronille, Orleans	23
22	Louis Trefflé Delisle		57	Trois Pistoles	18
23	J-Bte Couillard	Dominion Coal	60	Cap St. Ignace	23
24	J. E. Bonaventure Lavoie		59	Ste-Anne de la Pocatière	24
25	Adjudor Baillargeon	Manchester	57	Quebec	37
26	Samuel Rioux		58	Quebec	25
27	Charles Octave Clavet	Dominion Coal	57	St. Michel, Bellechasse	39
28	Paul Lachance	Allan Line	55	Quebec	38
29	Arcadius Jouvin		53	Ste. Luce, Rimouski	23
30	Paul Lachance	Dominion Coal	56	Quebec	23
31	Joseph Pouliot	Director	55	St. John, Orleans	
32	Adjudor Lachance	C.P.R.	53	Quebec	35
33	Frs. Gaudreau	C.P.R.	60	Quebec	35
34	Arthur Koenig		60	L'Islet	25
35	Eugène Ancil	Director	52	Quebec	
36	David Dumas		58	Notre Dame, Levis	24
37	Joseph Lachance		57	St. Laurent, Orleans	24
38	Alphonse Pouliot	Director	59	Chateau Richer	
39	Elézar Normand		52	Cap St. Ignace	23
40	Jean-Bte Bernier	Donaldson Line	52	L'Islet	42
41	Joseph Paquet		50	Quebec	24
42	Jean A. Lachance		49	Quebec	24
43	Arthur Baillargeon		54	Montreal	25
44	Joseph Vézina	Allan Line	50	Quebec	33
45	Herménégilde Guénard		53	Montmagny	23
46	John A. Irvine	Capt. White's Ship	55	Green Island	
47	Frédéric Bouffard		54	St. Laurent, Orleans	24
48	Jules Asselin	Dominion Coal	50	Quebec	33
49	Lucien Lachance	Thompson Line	50	Quebec	28
50	Camille Bernier	Dominion Line	53	Quebec	54
51	Moise Blouin		60	St. John, Orleans	24
52			51	Quebec, died 22 Oct.	5
53	Alfred Gaudreau		58	Cap St. Ignace	22
54	Alfred Raymond	Head Line	50	Quebec	24
55	Philéas Lachance	Dominion Coal	51	St. John, Orleans	27
56	Joseph H. Talbot		49	Berthier	23
57	Moise Arthur Lachance		48	St. John, Orleans	22
58	Louis François Thivierge	Dominion	45	Quebec	37
59	Edmond Larochele	Capt. Lady Evelyn	45	St. Michel, Bellechasse	1
60	Joseph Plante		45	St. Paul's Bay	27
61	Alphonse Paquet	Dominion Coal	45	St. John, Orleans	24

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PILOTS BY WHOM EMPLOYED, &c.—*Continued.*

No.	Name.	Employed by	Age.	Residence.	No. of Pilotages Effected.
62	Adélard Bernier.....	C.P.R.....	50	Quebec.....	36
63	Jean-Bte Pouliot.....	Donaldson Line.....	41	Beauport.....	45
64	Léonidas Lachance.....	.....	41	St. John, Orleans.....	25
65	Eudore Langlois.....	.....	49	Quebec.....	24
66	Joseph Delisle.....	Dominion Coal.....	37	St. John, Orleans.....	27
67	Jules Lachance.....	Allan Line.....	27	Quebec.....	33
68	Auguste Santerre.....	Allan Line.....	28	St. Michel, Bellechasse....	32
69	Arthur Larochelle.....	.....	30	St. Michel, Bellechasse....	26
70	Raoul Lachance.....	Elder-Dempster.....	30	St. Joseph, Levis.....	23
71	William Langlois.....	Dominion Coal.....	31	Quebec.....	38
72	Ernest Bernier.....	Manchester.....	36	St. Michel, Bellechasse....	35
73	Arthur Baquet.....	Elder-Dempster.....	28	Notre Dame de Levis....	26
74	Jules Lamarre.....	.....	27	St. Valier.....	29
75	George Larochelle.....	.....	32	St. Michel, Bellechasse....	36
76	Adélard Delisle.....	.....	31	Quebec.....	38
77	Pierre L. Lachance.....	Casapedia.....	27	Quebec.....	30
78	Alexandre Larochelle.....	.....	27	St. Michel, Bellechasse....	21
79	Joseph A. Dupil.....	.....	27	St. Jean, Port Joli.....	22
80	Arthur Paquet.....	.....	35	St. John, Orleans.....	24
					1,075

APPRENTICE PILOTS.

No.	Names.	No.	Names.	No.	Names.
1908		1909		1911	
1	Gabriel Lachance.....	9	Cyrille Pouliot.....	17	Louis-Philippe Langlois.
2	Ernest Pouliot.....	10	Paul Emile Lachance.....	18	Rodrigue Lachance.
3	Bastien Anctil.....	11	Herménégilde Bouffard.....	19	Edmond Baquet.
4	Jules-Adélard Bernier.....	12	Herménégilde Lachance.....	20	Leo Labrecque.
5	Felix Lavoie.....	13	Francois-Joseph Gaudios	21	Eudore Langlois.
6	Charles Henri Koenig.....		Gaudreau.....	22	Romeo Gaudreau.
1909		14	Camille Couillard.....		
7	Louis-Gonzague Lavoie.....	1911			
8	Albert Lachance.....	15	Lactance Lachance.....		
		16	J. Willie Pouliot.....		

App. pilots have all made 30 trips with pilots during the summer.

OFFICERS ON BOARD.

ADJUTOR LACHANCE,
President.

ONÉSIME NOËL,
Director.

EUGENE ANCTIL,
Director.

ALPHONSE POULIOT,
Director.

JOSEPH EMILIO COUILLARD,
Director.

JOSEPH POULIOT,
Director.

F. X. DION, *Secretary Treasurer.*

PH. LAMONTAGNE, *Assistant Secretary Treasurer.*

ALFRED LAROCHELLE,
Superintendent.

Certified by ALFRED LAROCHELLE, *Supt. Quebec Pilots.*

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APPENDIX No. 65.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF RESTIGOUCHE, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
W. F. Napier.....	O. C. Dec. 6, 1905.....	T. S. Blair resigned and was replaced by T. Mowat O. C. Feb. 9, 1912.
A. H. Hilyard.....	O. C. May 5, 1903.....	
D. Champoux.....	O. C. Feb. 8, 1907.....	
T. S. Blair.....	O. C. May 15, 1903.....	

NAMES AND AGE OF PILOTS AND EARNINGS.

Names.	Age.	Earnings.
Robert McNeil.....	70	(retired).
Joseph Elsliger.....	55	\$934 82
Edward Elsliger.....	46	934 82
William Donohue.....	44	934 82
Niels Nielson.....	37	934 82
Dan. C. McNeil.....	35	934 82
John McNeil.....	32	934 82
		\$5,608 92

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount paid.
26 British steam vessels.....	45,102	\$2,011 31
18 British sailing vessels.....	3,663	567 75
33 Foreign steam vessels.....	39,585	2,538 56
34 Foreign sailing vessels.....	31,887	1,184 24
	120,037	\$6,301 86

Ports.	Sail Vessels.	Tonnage.	Steam Vessels.	Tonnage.	Total Vessels.	Tonnage.	Dues.	Com-mission.	Net to Pilots.
C'ton, N.B....	30	16,549	31	39,891	61	56,440	\$3,768 66	\$113 05	\$3,655 61
Dalhousie....	18	17,395	23	36,544	41	53,939	2,064 08	61 92	2,002 16
River Louis'n	4	1,606	5	8,252	9	9,858	469 12	14 07	455 05
	52	35,550	59	84,687	111	120,237	6,301 86	189 04	6,112 82

3 GEORGE V., A. 1913

RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURES.	
For pilotage.....	\$6,301 86	Retained for expenses—	
		Commission including Secretary's salary\$	189 04
		Expenses of boats and upkeep.....	503 90
		Divided among six pilots at \$934.82 each	5,608 92
	<hr/>		<hr/>
	\$6,301 86		\$6,301 86

W. F. NAPIER,

Chairman Restigouche Pilotage Authority.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

The rates on pilotage, including the properly securing and mooring all ships or vessels, pilotage for the several ports within the pilotage district of Restigouche shall be as follows:—

For every foot of water any ship or vessel shall draw at the time inward or outward bound in the port of Dalhousie, Benjamin, Beaver point, Nash creek, Jacquet's river, or any loading station east of Dalhousie on the Bay of Chaleur, \$1.50; Port of Campbellton, \$2; Oak bay or any loading station east of same, west of Dalhousie, \$2, when ships proceed direct from sea.

Ships bound for Dalhousie, Benjamin, Beaver point, Nash's creek, Jacquet river, or any loading station east of Dalhousie, calling at any of the said harbours for orders, or to discharge ballast, cargo, or otherwise on ship's account, \$1.50; and thence to the said port or loading stations on the Bay of Chaleur, 75 cents per foot draught of such ship at the time.

Ships bound for Campbellton, Oak bay or any loading station east of Oak bay and west of Dalhousie, waiting at Dalhousie or any of the outer or bay ports to discharge ballast, cargo or otherwise on ship's account, \$1.50, and thence to the said port of Campbellton, 75 cents; Oak bay or any loading station east of Oak bay, and west of Dalhousie, 75 cents per foot draught of such ship at the time and vice versa.

For the removal of any ship, including the properly securing and mooring such ship, the following rates, viz.: The sum of one dollar and fifty cents for ships not exceeding one hundred and twenty tons; the sum of two dollars for ships over one hundred and twenty tons and not exceeding three hundred tons; the sum of four dollars for ships over three hundred tons and not exceeding six hundred tons; and the sum of five dollars for all ships over six hundred tons; and when the distance of removal extends four miles, fifty per cent additional to above rates. In addition to above rates all vessels propelled wholly or in part by steam shall pay one cent inwards and one cent outwards per net registered tonnage.

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APPENDIX No. 66.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF RICHMOND, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Hon. Isidore LeBlanc.....	O. C. Feb. 23, 1894.....	None.
Wm. Babin.....	O. C. Feb. 23, 1894.	"
Capt. Henry LeMarchant.....	O. C. Aug. 25, 1905.	"
Hon. Isidore LeBlanc, Secretary.		

NAMES OF PILOTS, AGE AND EARNINGS.

Mordick Boudrot, appointed in 1905; age 52; earnings \$33.

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount paid.
1 British steam vessel.....	321	\$16 50
1 British sailing vessel.....	99	8 25
1 Foreign sailing schooner.....	99	8 25
	519	\$33 00

Money thus earned was remitted to the pilots.

Pilotage boat—1 large open boat. No cost of maintenance.

Navigation at this port opens April and closes in February.

ISIDORE LEBLANC,

Secretary.

December 31, 1911.

The following shall be the rates of pilotage:—

Inwards—

Vessels of 80 tons and under 100 tons	\$ 5 50
“ 100 “ “ 150 “	6 50
“ 150 “ “ 200 “	7 50
“ 100 “ “ 250 “	9 00
“ 200 “ “ 250 “	9 00
“ 250 “ “ 300 “	10 00
“ 300 “ “ 350 “	11 00
“ 350 “ “ 400 “	12 00

and for any additional fifty tons or fraction thereof, 75 cents.

Outwards—One-half of the above rates.

3 GEORGE V., A. 1913

APPENDIX No. 67.

REPORT OF THE PILOTAGE COMMISSIONERS OF THE DISTRICT OF
RICHIBUCTO, N.B., FOR THE YEAR ENDING MARCH 31, 1912.

PILOTAGE COMMISSIONERS.

Names.	When Appointed.	Names.	When Appointed.
Wm. J. Brait.....	1880	W. E. Forbes.....	1909
Frank Curran.....	1909	R. O'Leary.....	1909
Fred. Ferguson.....	1909		

NUMBER, NAMES OF PILOTS, WHEN APPOINTED, AND EARNINGS.

Names.	When Appointed.	Earnings.
1. James Long.....	1870	
2. William Long.....	1871	
3. Albert Long.....	1872	
4. John Curwin.....	1894	
5. George Long.....	1875	
6. Henry Irving.....	1871	\$500 00

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount paid.
3 Foreign steam vessels.....	3,500	
5 Foreign sailing vessels.....	1,500	\$500 00

RECEIPTS AND EXPENDITURES.

RECEIPTS.

Pilotage fees.....	\$500 00
Pilots' licenses (6).....	6 00
	\$506 00

EXPENDITURES.

Paid to pilots and Secretary's salary, &c.....	\$505 00
Forms and stationery.....	1 00
	\$506 00

No special pilotage boats.
Navigation in this port opens 15th April and closes 1st December.

FRED FERGUSON,
Secretary.

December 31, 1911.

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The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage.

\$1.50 each, inward and outward, per foot.

Not exceeding 80 tons, \$5 each way; below 50 tons, \$3 each way.

The annual meeting of the pilotage commissioners was held in the court house on April 26, 1911.

The following pilots were granted licenses for the year 1911:—

James Long.	No. 1
William Long.	" 2
Albert Long.	" 3
John Curwin.	" 4
Geo. Long.	" 5
Henry Irving.	" 6

APPENDIX No. 68.

REPORT OF THE PILOTAGE COMMISSIONERS OF THE DISTRICT OF SACKVILLE, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

Names of Commissioners—Albion Gray, appointed 1894; Thos. R. Anderson, appointed 1905; Nelson Packham, appointed 1911.

Names, age of pilots, when appointed and earnings—

1. Willard Barnes, age 60; appointed 1890; earnings.	\$84 28
2. Luther Snowdon, age 50; appointed 1910; earnings.	30 96
	<hr/>
	\$115 24

No apprentice pilots in this Authority.

No white flag ships licensed for the year.

Vessels which paid pilotage fees for the year—

7 British sailing vessels; tonnage.	1,414	amount paid.	\$85 00
3 Foreign sailing vessels; tonnage.	756	amount paid.	30 24
	<hr/>		<hr/>
	2,170		\$115 24

RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURES.	
Pilotage fees.	\$115 24	Licenses.	\$ 5 00
		To pilots.	110 24
	<hr/>		<hr/>
	\$115 24		\$115 24

No special pilot boats.

Navigation in this port opens about 21st March and closes early in January.

THOS. R. ANDERSON,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

Pilotage charges are: 5 cents per register ton, inward; 3 cents per register ton, outward.

There are no other pilotage charges and the pilots often arrange with masters of ships to accept half the above fees if when the master can obtain a towboat, he has his vessel towed instead of sailing the vessel in and outward—it is often that towboats cannot be obtained when required.

APPENDIX No. 69.

REPORT OF THE PILOTAGE COMMISSIONERS FOR THE PILOTAGE
AUTHORITY OF SHEDIAC, FOR THE YEAR ENDING DECEMBER 31,
1911.

Pilotage Commissioners.	When Appointed.	Pilotage Commissioners.	When Appointed.
Michael Connors.....	1906	D. J. Dawson.....	1906
Charles Robonto.....	1906	E. B. McDonald.....	1906
George McDevith.....	1906		

Names of Pilots.	When Appointed.	Age.	Earnings.
Thomas McGrath.....		65	
Olaf Hendrickson.....		50	\$204 2
Paul P. LeBlanc.....		67	116 8

Apprentice pilots.—None.

White flag ships licensed for the year.—None.

Statement of vessels which paid pilotage fees for the year—

British steam vessels.....

Foreign steam vessels—tonnage..... 3,194 amount paid..... \$321 01

DETAILED STATEMENT OF RECEIPTS AND EXPENDITURE.

RECEIPTS.		EXPENDITURES.	
Pilotage dues.....	\$321 01	Paid pilots.....	\$314 6
		Sec'y Comm. on pilotage dues.....	6 4
	\$321 01		\$321 0

E. R. McDONALD,
Secretary.

December 31, 1911.

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

The rate of pilotage for this district is one dollar and fifty cents (\$1.50) per foot draught of water for vessels inwards, one dollar and fifty cents (\$1.50) per foot draught of water for vessels outwards bound, and for the removal of any ship or vessel and securing such ship or vessel properly secured or moored, the sum of four dollars (\$4) for each such removal, hauling a vessel into the wharf or dock from the stream not to be considered a removal. It was ordered on May 30, 1908, 'That all ships or vessels propelled by steam or driven by power other than sails shall pay 4 cents per ton on her registered tonnage in addition to the above rules.

APPENDIX No. 70.

REPORT OF THE PILOTAGE COMMISSIONERS OF THE DISTRICT OF
ST. ANNS, VICTORIA COUNTY, N.S., FOR THE YEAR ENDING MARCH
31, 1911.

Commissioners.	Appointed.	Changes.
Angus J. McRitchie.....	O. C. Apr. 23, 1904.....	None.
Captain Murdock Smith.....	O. C. Apr. 23, 1904.....	"
Donald McAulay.....	O. C. Apr. 23, 1904.....	"

NAMES AND AGE OF PILOTS AND EARNINGS.

No.	Names.	Age.	Appointed.	Earnings.
1	Joseph Fader.....	58	May 1, 1905	\$ 151 50
2	Archibald Carmichael.....	41	" 1, 1905	151 50
3	Angus B. Morrison.....	47	" 1, 1905	151 50
4	Dan Buchanan.....	38	" 1, 1905	151 50

No apprentice pilots in this Authority.
No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

No.	Tonnage.	Amount Paid.
17 Foreign steam vessels.....	12,407	\$ 606 00

RECEIPTS AND EXPENDITURES

RECEIPTS.	EXPENDITURE.
Collected for pilotage..... \$ 606 00	Paid to pilots.....
	Joseph Fader..... \$ 151 50
	Archibald Carmichael..... 151 50
	Angus B. Morrison..... 151 50
	Dan Buchanan..... 151 50
	<u>\$ 606 00</u>
<u>\$ 606 00</u>	

Pilotage boats.
4 boats, each pilot has a boat.
Navigation in this port opens April 30 and closes about January 1st.

DONALD McAULAY,
Secretary.

December 31, 1911.

21—25½

Scale of pilotage fees for the pilotage district of St. Ann's in the County of Victoria, N.S.:—

Vessels of 120 to 200 tons.....	\$ 7 00
“ 200 “ 250 “	8 00
“ 250 “ 300 “	9 00
“ 300 “ 350 “	12 00
“ 350 “ 400 “	13 00
“ 400 “ 450 “	14 00
“ 450 “ 500 “	15 00
“ 500 “ 600 “	16 00
“ 600 “ 700 “	17 00
“ 700 “ 800 “	18 00
“ 800 “ 900 “	19 00
“ 900 “ 1,000 “	20 00
“ 1,000 “ 1,500 “	21 00
“ 1,500 “ 2,000 “	24 00

APPENDIX No. 71.

REPORT OF THE PILOTAGE COMMISSIONERS OF ST. JOHN, N.B., FOR THE YEAR ENDING DECEMBER 31, 1911.

Name.	When Appointed.	Name.	When Appointed.
Edward Lausalum.....	9th June, 1886	James Knox.....	Feb'y. 25th, 1894
J. Willard Smith.....	14th August, 1894	Harold C. Schofield.....	October 3rd, 1911

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

On all steamships not otherwise exempt.

<i>Inward—</i>	
1st District.....	\$ 2 00 per foot draught of water
2nd “	2 50 “ “
3rd “	3 00 “ “

<i>Outward—</i>	
To Partridge Island.....	\$ 1 75 per foot
Down the Bay of Fundy (not compulsory).....	2 75 “

<i>Inward—</i>	
1st District.....	\$ 1 50 per foot draught of water
2nd “	1 75 “ “
3rd “	2 25 “ “

<i>Outward—</i>	
To Partridge Island.....	\$ 1 25 per foot
Down the Bay of Fundy (not compulsory).....	2 00 “

<i>Transporting—</i>	
200 tons and under.....	\$ 2 00
From 200 tons and up to 300.....	3 50
300 “ 400.....	4 00
400 “ 500.....	5 00
500 “ 1,000.....	7 00
1,000 “ 1,500.....	9 00
1,500 “ 2,000.....	11 00
From 2,000 and up to 2,500.....	\$13 00
2,500 “ 3,000.....	15 00
3,000 “ 3,500.....	17 00
3,500 “ 4,000.....	19 00
4,000 “ 4,500.....	21 00
4,500 “ 5,000.....	23 00
5,000 tons and over.....	25 00

Total amount of pilotage received..... 38,081 83

<i>Less—</i>	
25c. per foot from outward pilotage.....	\$2,189 57
5% from net pilotage.....	1,763 85
	3,953 42

Net amount paid to pilots..... \$ 34,128 41

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NAMES OF PILOTS AND EARNINGS.

Number.	Name.	When Appointed.	Age.	Amount Paid to.
1	Bennet, James.....	1882	54	\$ 2,075 80
2	Cline, Alfred.....	1878	54	653 85
3	Cline, Richard B.....	1898	40	1,466 85
4	Doyle, James.....	1874	74	1,637 84
5	Doherty, Joseph.....	1874	65	2,030 10
6	Doherty, Robert.....	1908	26	2,256 25
7	Lahey, Frank L.....	1896	40	887 25
8	Miller, James S.....	1899	32	2,523 86
9	Murray, William.....	1899	38	1,728 15
10	McKelvey, Fenwick M.....	1908	25	2,451 12
11	Quinn, William.....	1874	64	1,608 83
12	Rogers, Bartholomew.....	1881	54	2,458 80
13	Spears, James S.....	1874	66	702 25
14	Spears, Henry.....	1874	60	1,469 87
15	Spears, William J.....	1908	25	1,821 98
16	Sherrard, John L. C.....	1874	77	1,902 11
17	Stone, Thomas J.....	1875	58	1,961 32
18	Scott, Richard.....	1874	60	
19	Scott, William.....	1878	55	841 48
20	Thomas, John S.....	1874	63	2,068 92
21	Traynor, Thomas.....	1874	58	1,155 78
	Pilotage on hand (unclaimed) in course of adjustment.....			426 00
				\$34,128 41

NAMES OF APPRENTICE PILOTS AND EARNINGS.

Number.	Name.	When Appointed.	Age.	Amount Paid.
.....	Abbott, John F.....	June 1, 1910.....	17	
.....	Traynor, William O.....	June 1, 1910.....	18	
.....	Scott, William, Jr.....	August 1, 1910.....	18	

These apprentices are paid \$8 monthly by the boat to which they are attached.
White flag ships licensed for the year.—None.

STATEMENT OF VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR

Number.		Tonnage.	Amount Pd.
246	British steam vessels.....	770,624	\$27,603 59
155	“ sailing “.....	52,189	4,810 58
16	Foreign steam “.....	20,680	1,348 76
157	“ steam “.....	46,398	431 90
		890,882	\$38,081 83

3 GEORGE V., A. 1913

STATEMENT OF PENSIONS OR RELIEF FUND.

At credit of Fund, 31st December, 1910.....	\$ 5,006 23
By interest on Bank Deposits.....	293 64
By amount from Income Account.....	859 24
	<hr/>
	6,159 11
Pensions paid to pilots and widows.....	1,995 00
	<hr/>
Balance to credit of Fund, 31st December, 1911.....	\$ 4,164 11

DETAILED STATEMENT OF RECEIPTS AND EXPENDITURE.

RECEIPTS.		EXPENDITURE.	
Balance 31st December, 1910.....	\$ 4,057 09	Pensions paid—	
25c. per foot outward pilotage, St. John,		2 pilots.....	\$ 450 00
\$2,189.57, Musquash, \$6.....	2,195 57	12 widows.....	1,525 00
5% from net pilotage.....	1,763 85	Financial assistance.....	20 00
Licenses to 21 pilots.....	105 00	Dr. Emery for examining apprentices	16 00
“ 4 boats.....	40 00	Auditing Accounts.....	25 00
Interest on Deposits—		Office rent.....	100 00
Dominion Savings Bank.....	260 19	Stationery, &c.....	24 63
Bank of New Brunswick.....	33 45	Salary Sec.-Treas.....	1,000 00
		Telegrams.....	4 45
		Sundries.....	11 25
		Expenses re Ottawa.....	300 00
		Bank of New Brunswick, special	
		deposit.....	3,000 00
		Accrued interest—	
		Dominion Savings Bank.....	260 19
		Bank of New Brunswick.....	33 45
		Balance in Bank of New Brunswick..	1,685 18
	<hr/>		<hr/>
	\$ 8,455 15		\$ 8,455 15

PILOTAGE BOATS.

Number.	Name.	Statement of Cost of Maintenance.
1	Howard D. Troop.....	These boats are owned and maintained by the pilots themselves and the office has no accurate knowledge of the cost, &c.
3	Nena Blanche.....	
4	Lightning.....	
5	James A. Thomas.....	

Navigation was open all the year around.

J. W. THOMAS,
Secretary.

St. JOHN, N.B., January 6, 1912.

APPENDIX No. 72.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF SYDNEY
AND NORTH SYDNEY, CAPE BRETON, N.S., FOR THE YEAR ENDING
MARCH 31, 1911.

PILOTAGE COMMISSIONERS.

Names:—A. GANNON, J. RATCHFORD, D. A. HEARN, D. A. SMITH, W. A. RICHARDSON.

NUMBER, NAMES OF PILOTS AND EARNINGS.

Number.	Name.	Earnings.
1	John Cann.....	
2	John Mullins.....	\$ 926 63
3	Wm. Perry.....	926 63
4	Geo. Fraser.....	926 63
5	John Carroll.....	926 63
6	James Carroll.....	926 63
7	L. Ling.....	926 63
8	J. G. MacGilvary.....	926 63
9	J. B. MacGilvary.....	926 63
10	Thos MacNeil.....	926 63
11	Thomas Rudderham.....	926 63
12	John MacNeil.....	926 23
13	Bernard Mullins.....	926 23
14	D. A. MacInnis.....	926 23
15	Joseph Brown.....	926 23
16	Henry Petril.....	926 23
17	Jas. Fraser.....	926 32
18	Thos. Ratchford.....	926 23
19	Wm. Langille.....	926 23
20	J. T. Laffin.....	926 23
21	M. Curran.....	926 23
22	D. D. Petril.....	926 23
23	E. F. Petril.....	926 23
24	E. D. Cann.....	926 23
25	Louis Carroll.....	926 23
26	H. Ratchford.....	926 23
27	John Boutilier.....	926 23
28	Geo. Spencer.....	926 23
29	Thos. Roberts.....	926 23
30	V. MacGilvary.....	926 63
31	Thos. Burke.....	926 63
32	A. R. Richardson.....	926 63
33	John Mahon.....	926 63
34	James Shonohon.....	926 63
35	Peter Rigby.....	126 62
		\$ 32,432 04

NAMES OF APPRENTICE PILOTS AND EARNINGS.

Number	Names.	Earnings.
1	James Young.....	\$ 463 31
2	John Beaton.....	463 31
3	Frank MacGilvary.....	463 31
4	Wm. Young.....	463 31
		\$ 1,853 24

WHITE FLAG SHIPS LICENSED FOR THE YEAR.

Name.	Class.	Amount.
Wasis.....	Steamer..	\$ 100 00
Cape Breton.....	"	100 00
Louisbourg.....	"	100 00
Cobon.....	"	100 00
Cacouna.....	"	100 00
Bonavista.....	"	100 00
Wobun.....	"	100 00
		\$ 700 00

STATEMENT OF PENSIONS OR RELIEF FUND

<i>Widows</i> — Brown, Isabel MacGilvary, Constance MacGilvary, Mary Petril, Margaret Petril, — Macinnis, — Ratchford, at \$30 a year.....	\$ 210 00
<i>Pilots</i> — G. B. Brown, Geo. Townsend, John Fraser, Wm. Ratchford, L. Cannel at \$50 a year.....	\$ 250 00
Maurice Doyle.....	50 00
	\$ 510 00

RECEIPTS AND EXPENDITURES.

RECEIPTS.	EXPENDITURES.
Pilotage.....\$ 34,285 28	Paid pilots.....\$ 32,432 04
Relief and commission.....1,906 61	" apprentices.....1,853 24
White flag licenses.....700 00	" relief.....510 00
Pilot.....111 00	" three collectors.....850 00
Boat.....11 00	" Commissioners' expenses.....775 00
Refund Mrs. Daley, 1910.....30 00	" clerk.....500 00
Balance, Dec 31, 1910.....1,010 44	" office rent.....100 00
	" supt. pilots.....250 00
	" telephone.....17 25
	" printing.....22 50
	" horse hire and stationery.....8 75
	" balance Commissioners' expenses 1910.....100 00
	Surplus in the fund.....635 55
\$ 38,054 33	\$ 38,054 33

W. A. RICHARDSON,
Secretary.

December 31, 1911.

By-law No. 5.—The rates of pilotage shall be as follows:—

	To Sydney.	To North Sydney.
For vessels under 100 tons.. . . .	\$ 6 00	\$ 5 00
From 100 to 150 tons.. . . .	7 00	6 00
" 150 to 200 "	8 00	7 00
" 200 to 250 "	9 00	8 00
" 250 to 300 "	10 00	9 00
" 300 to 350 "	11 00	10 00
" 350 to 400 "	12 00	11 00

And for every additional 50 tons or fractional part thereof, \$1; for vessels 800 tons and upwards, \$1 for every additional 100 tons or fractional part thereof. Outward pilotage shall be the same as inward. Vessels, upon being hailed by a licensed pilot outside the limits of the port, but within the pilotage district of Sydney, and

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refusing to, or not taking such pilot, shall pay half pilotage inwards; and upon being offered the services of a licensed pilot before being ready for sea and refusing the services of such pilot, shall be liable to half pilotage outward. Should the services of a pilot so offering be accepted by the master and afterwards declined, then the vessel shall be liable for full pilotage rates; and any pilot placed in charge of a vessel by the master shall be entitled to receive, in addition to full pilotage rates, the sum of two dollars per diem for each day the vessel may be detained while he is waiting on her, through stress of weather or otherwise. And in case a pilot is taken to sea the ship shall be responsible for his expenses unless returned to the port of Sydney. Vessels spoken by a pilot outside of her harbour limits or changing ports between Sydney and the ports of Langan, Glace Bay and Cow Bay, shall only be liable for inward pilotage at the loading port, unless a pilot be employed in changing ports, in which case full tariff rates will be charged. Pilots delivering orders outside of port limits to vessels to proceed elsewhere shall be entitled to receive full inward pilotage only for such vessels, and pilots prevented from delivering orders after being received by them, by reason of the orders being signalled from light stations shall be entitled to receive full inward pilotage; and if, in any case, another regular pilot belonging to the same port be found in charge and the pilot delivering orders. Vessels arriving from sea without being spoken inwards by a pilot shall be subject to half pilotage outward unless a pilot be employed, in which case full outward pilotage will be charged, the half pilotage in this case to be paid into the pilotage fund. Vessels calling for orders and remaining outside of harbour limits shall be exempt from outward pilotage unless a pilot be employed.

APPENDIX No. 73.

REPORT OF PILOTAGE COMMISSIONERS OF TIDNISH AND NORTH-PORT, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Burpee Rockwell.....	O. C. July 28, 1899.....	None.
John Campbell.....	O. C. May 1, 1901.....	"
Silas Taylor.....	O. C. March 28, 1902.....	"
J. Harvey Angus.....	O. C. June 19, 1902.....	"
David Mitchell.....	O. C. June 15, 1903.....	"
Secretary—Burpee Rockwell.....	O. C. Oct. 9, 1900.....	"

Pilot, Ferguson Brownell, No. 1, appointed Aug. 31, 1899; age 48; earnings, \$31.50.

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

Vessels which paid pilotage fees for the year—1 foreign sailing vessel, tonnage 1,000; amt. paid, \$31.50.

RECEIPTS AND EXPENDITURES.

RECEIPTS.		EXPENDITURES.	
Fees on pilotage.....	\$31 50	Paid to pilot.....	\$29 93
		Paid to Secretary Commission.....	1 57
	\$31 50		\$31 50

Pilotage boats—1 boat (No. 2). Cost of maintenance, \$6.00.

Navigation in this port opens May 1st and closes December 15th.

BURPEE ROCKWELL,
Secretary.

December 31, 1911.

3 GEORGE V., A. 1913

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in respect of pilotage:—

One dollar per foot inward, one dollar per foot outward, and two dollars and fifty cents for shifting from ballast to loading ground.

The amount received for pilotage dues for the year 1911, \$31.50.

APPENDIX No. 74.

REPORT OF THE PILOTAGE COMMISSIONERS OF VANCOUVER, BRITISH COLUMBIA, FOR THE YEAR ENDING DECEMBER 31, 1911.

STATEMENT of Vessels which paid Pilotage Fees for the Year.

PILOTAGE COMMISSIONERS.

Name.	When Appointed.	Name.	When Appointed.
R. H. Alexander, chairman.....	May 26th, 1883.	G. E. Macdonald.....	Aug. 10th, 1910
C. G. Major.....	May 14th, 1879.	Robt. Kelly.....	Aug. 10th, 1910.
Frank Burnett.....	July 20th, 1898.		

The rates of pilotage dues for the time being in force in this district including the amounts and description of all charges upon shipping made in the respect of pilotage:—

For vessels entering into or clearing from the ports of Vancouver and Howe Sound, the rates of pilotage are as follows:—

(a) For vessels under sail, \$2 per foot draught of water and 1 per cent net registered ton.

(b) For vessels in tow of a steamer, \$1 per foot draught of water and 1 per cent per net registered ton.

(c) For steamers, \$1 per foot draught of water, and 1 per cent per net registered ton.

The pilotage from Cape Flattery or Royal Roads to a line drawn from Point Atkinson to the nun buoy on Spanish Bank, or to the limits of Howe Sound and vice versa, is not compulsory, but if the services of a pilot are required, he shall be paid the following rates, viz.:—

From Cape Flattery..	\$6 00 per foot.
From Callum..	5 00 "
From Beachy Head..	4 00 "
From Race Rocks or Royal Roads..	3 00 "

And for vessels under steam or in tow of a steamer the following rates shall be paid:—

From Cape Flattery..	\$3 00 per foot.
From Callum Bay..	2 50 "
From Beachy Head..	2 00 "
From Race Rocks or Royal Roads (vessels under steam)..	1 00 "
From Race Rocks or Royal Roads (vessels in tow of a steamer)..	1 50 "

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NAMES OF PILOTS AND EARNINGS.

Number.	Name.	When Appointed.	Age.	Amount Earned.	Amount Paid to.
1	William Ottershank.....	June 18th, 1888....	69	Pilots work in one Company	\$3,001 92
2	George W. Robertson.....	Dec. 20th, 1889....	61		3,791 44
3	H. Robson Jones.....	July 1st, 1892.....	56		3,791 43
4	Donald Patterson.....	April 1st, 1901.....	50		1,125 00
5	George W. Robarts.....	Oct. 1st, 1907.....	39		3,791 42
6	Robert A. Batchelor.....	May 15th, 1910....	40		3,340 20
7	Avery C. Anderson.....	Oct. 16th, 1911....	43		363 72
					\$30,306 39
					\$19,205 13

No Apprentice pilots in this Authority.
No white flag ships licensed for the year.

STATEMENT OF VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.		Tonnage.	Amount Paid.
286	British steam vessels.....	986,411	\$19,459 10
8	British sailing vessels.....	15,638	302 88
526	Foreign steam vessels.....	366,682	10,076 32
18	Foreign sailing vessels.....	21,744	468 09
838		1,390,475	\$30,306 39

There is no Pension or Relief Fund, but a Reserve Fund in Bank of Montreal Savings Department amounting to \$893.05.

DETAILED STATEMENT OF RECEIPTS AND EXPENDITURE.

RECEIPTS.

Balance in bank, 1st Jan., 1911.....\$ 1,783 84
Pilotage earnings, year 1911.....30,306 39

EXPENDITURES.

Paid pilots, Jan. 5th, 1911.....\$ 1,783 84
Paid pilots during year 1911.....19,205 13
Office expense account, 1911.....1,397 83
Pilot boat and station expense acct., 1911.....3,799 56
Pilots' travelling expenses, &c., 1911 4,271 10
Balance in Bank.....1,632 77

\$32,090 23

\$32,090 23

PILOTAGE BOATS AND STATION.

Number or Name.	Statement of Cost of Maintenance.	
"Pilot No. 1" (gas.).....	Men's wages, repairs and general running expenses.....	\$3,799 56

Date when navigation opened, all year round.

Approved

RICHARD ALEXANDER,
Chairman.

C. GARDNER JOHNSON,

Secretary-Treasurer, Vancouver Pilotage Authority.

Vancouver, B.C.,
January 2, 1912.

APPENDIX No. 75.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF VICTORIA AND ESQUIMALT, B.C., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
H. F. Bullen.....	O. C. March 29, 1905.....	None.
William Grant.....	O. C. October 22, 1901.....	"
I. A. Gould.....	O. C. March 29, 1909.....	"
F. A. Pauline.....	O. C. Sept. 25, 1909.....	"
John Kingham, Secretary.		

NAMES AND AGE OF PILOTS AND EARNINGS.

Names.	Age.	Appointed.	Earnings.
John Newby.....	63	1891	\$3,646 73
William Cox.....	56	1903	3,999 89
John Thompson (retired July 31st, 1911).....			2,125 87
Charles Israel Harris.....	44	1910	4,550 62
Whiteley, W. H.....	49	1911	1,976 91
			\$16,300 02

No apprentice pilots in this Authority.

No white flag ships licensed during the year.

VESSELS WHICH PAID PILOTAGE FEES FOR THE YEAR.

Number.	Tonnage.	Amount Paid.
British steam vessels.....	723,836	\$7,367 10
British sailing vessels.....	7,782	148 08
Foreign steam vessels.....	681,273	8,383 27
Foreign sailing vessels.....	13,879	401 57
		\$16,300 02

RECEIPTS AND EXPENDITURES.

RECEIPTS.	EXPENDITURES.
Fees on British vessels..... \$7,515 18	Pilots' drawings..... \$14,670 14
Fees on foreign vessels..... 8,784 84	Secretary's salary..... 600 00
Fees on coasting licenses..... 850 00	Rent and expenses..... 420 00
	Miscellaneous expenses..... 135 00
	Exchange..... 6 45
	Surplus..... 1,318 43
\$17,150 02	\$17,150 02

Pilotage Boats.	Cost of Maintenance.
No. 1 Colby.....	Expenditure for upkeep of plant, paid by the pilots out of their net earnings during year.....
No. 2 Colby.....	
	\$4,231 80

Navigation in this port always open.

December 31, 1911.

JOHN KINGHAM,
Secretary.

Pilotage Rates.

Vessels bound to other ports and coming to anchor in Royal Roads, the pilotage shall be free, except the services of a pilot are employed, when pilotage according to the following graduated scale shall be payable:—

From inside or north of Race Rock to Royal Bay, or *vice versa*, 50 per cent of the prescribed rates under clause (b), section 18. From Beechy Head to Royal Roads, or *vice versa*, \$1 per foot.

From Pillar Point to Royal Roal or *vice versa*, \$3 per foot.

From Cape Flattery to Royal Roads or *vice versa*, \$6 per foot draught of water.

For vessels entering into or clearing from the ports of Victoria and Esquimalt, the rates of pilotage shall be as follows:—

(1) For regular ocean steamers, 50 cents per foot draught of water and $\frac{1}{2}$ cent per net registered ton up to a maximum of 3,500 tons, on the inward voyage, and 50 per cent of the above on the outward voyage subject to a discount of 20 per cent.

(2) For irregular ocean steamers, \$1 per foot draught of water, and $\frac{3}{4}$ cent per net registered ton.

(3) For regular steamers in the coasting trade between San Francisco and Lynn Canal, inclusive, the rates shall be the same as for regular ocean steamers as rated in clause 1.

(4) For vessels under sail, \$2 per foot draught of water and 1 cent per net registered ton.

(5) For sailing vessels in tow, \$1.50 per foot draught of water and 1 cent per net registered ton.

(6) For all vessels entering into or clearing from William's Head Quarantine Station, the rates shall be 50 per cent of the prescribed rates of any class of vessel for Victoria and Esquimalt, subject to exemption in section 17, clause 7; provided, however, that all coasters between San Francisco and Lynn canal inclusive, when compelled by special instructions from the Dominion Government to call at William's Head Quarantine Station, shall be exempt from pilotage dues unless the services of a pilot are requested.

(7) For all vessels of 500 tons and under, 75 cents per foot draught of water.

Gulf Pilotage.

For all vessels from the limits of the ports of Victoria and Esquimalt to the limits of all ports on Puget Sound and Gulf of Georgia, shall be \$1 per foot draught of water.

APPENDIX No. 76.

REPORT OF PILOTAGE COMMISSIONERS OF THE DISTRICT OF WALLACE, N.S., FOR THE YEAR ENDING DECEMBER 31, 1911.

PILOTAGE COMMISSIONERS.

Names.	Appointed.	Changes.
Zebud A. MacKay.....	O. C. April 30, 1883.....	William Scott, Commissioner, resigned.
F. K. Grant.....	O. C. October 6, 1891.....	
John W. Morris.....	O. C. June 11, 1879.....	

NAMES AND AGE OF PILOTS AND EARNINGS.

Names.	Age.	Appointed.	Earnings.
Alexander Patton.....		August, 1898.....	\$20 00
Hudson Langills.....		October, 1892.....	
Warren Betts.....		June, 1889.....	

No apprentice pilots in this Authority.

No white ships licensed during the year.

Vessels which paid pilotage fees for the year—1 sailing vessel (foreign), tonnage 250; paid \$20.

Pilotage boats—1 boat owned by the pilots.

JOHN W. MORRIS,

Secretary.

December 31, 1911.

The rates of pilotage dues for the Port of Wallace shall be as follows:—

Vessels of.	Inward.	Outward.
80 tons and under 160 tons.....	\$ 6 00	\$ 4 00
160 " " 230 "	9 00	6 00
230 " " 400 "	12 00	8 00
400 tons upward.....	14 00	10 00

On all vessels under 80 tons accepting the services of a pilot, five cents per ton inward and four cents per ton outward. Steamers rated at net tonnage. The above rates are for pilotage to or near the Wallace-Huestis Grey Stone Wharf; up Wynn's channel to the Plaster wharf, or up the Fox Harbour channel. Vessels requiring the services of a pilot to Wallace Bridge, shall pay twenty-five cents per foot (draught), or if the Wallace Freestone quarries or up to the Bay to the Abiteau, then the sum of five cents per foot each way additional.

L. A. DEMERS,

General Superintendent.

STATEMENT showing Returns, Shipping and Discharging of Seamen &c.—Continued.
NEW BRUNSWICK—Concluded.

Name of Port.	Name of County.	Name of Shipping Master.	HALF YEAR ENDING JUNE 30, 1911.				HALF YEAR ENDING DEC. 31, 1911.				TOTAL.
			Seamen Shipped.	Seamen Discharged.	Amount.	\$ cts.	Seamen Shipped.	Seamen Discharged.	Amount.	\$ cts.	
Musquash.....	St. John.....										
New Brandon.....	Gloucester.....										
Newcastle.....	Northumberland.....										
Quaco.....	St. John.....										
Riverside.....	Albert.....	Charles Morris.....						5	1 50	5	1 50
Rockport.....	Westmoreland.....										
Sackville.....	Westmoreland.....										
St. Andrews.....	Charlotte.....	W. Snodgrass.....									
St. George.....	Charlotte.....	James McKay.....									
St. John.....	St. John.....	W. H. Purdy.....	867	353	539 40		845	361	530 80	1,712	1,070 20
Shediac.....	Westmoreland.....										
Shippegan.....	Gloucester.....	Edouard D. Chiason.....									
St. Stephen.....			29				19	25	17 00	48	33 90
St. Martins.....	St. John.....	G. R. McDonough.....		8	16 90						
							1,807				1,138 40

NOVA SCOTIA.

Name of Port.	Name of County.	Name of Shipping Master.	HALF YEAR ENDING JUNE 30, 1911.				HALF YEAR ENDING DEC. 31, 1911.				TOTAL.
			Seamen Shipped.	Seamen Discharged.	Amount.	\$ cts.	Seamen Shipped.	Seamen Discharged.	Amount.	\$ cts.	
Advocate Harbour.....	Cumberland.....	Wm. Moore.....	16	13	11 90						11 90
Amherst.....	Cumberland.....	B. W. Baker.....		1	0 30						0 30
Annapolis.....	Annapolis.....										
Antigonish.....	Antigonish.....										
Apple River.....	Cumt. land.....										
Arichat.....	Richmond.....	D. O. C. Madden.....	9	3	5 40						5 40
Baddeck.....	Victoria.....										
Barrington.....	Shelburne.....	D. Sargent.....	1	1	0 80			4	1 20		2 00
Bayfield.....	Digby.....	F. H. Hutcheson.....	57	14	32 70		59	60	47 50	5	80 20
Bellevue Cove.....	Antigonish.....										
Bear River.....	Digby.....	E. E. Therrault.....	15	33	17 40						17 40
Beaver Harbour.....	Digby.....	W. W. Wade.....	21	22	17 10		36	39	29 70	81	46 80
	Halifax.....										

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[illegible]

STATEMENT showing Returns, Shipping and Discharging of Seamen, &c.—*Concluded.*
NOVA SCOTIA—*Concluded.*

Name of Port.	Name of County.	Name of Shipping Master.	HALF YEAR ENDING JUNE 30, 1911, HALF YEAR ENDING DEC. 31, 1911.						TOTAL.	
			Seamen Shipped.	Seamen Discharged.	Amount.	Seamen Shipped.	Seamen Discharged.	Amount.	Seamen Shipped.	Seamen Discharged.
					\$ cts.			\$ cts.		\$ cts.
Riverport.....	Lunenburg.....	Stephen Ritcey.....	94		47 50	13	6	8 30	107	6
St. Ams.....	Victoria.....	D. McAulay.....								
St. Peters.....	Richmond.....	E. M. Morrison.....	35	5	19 00	17	4	10 00	52	9
Salmon River.....	Digby.....	Ed. Doucette.....	4		2 00		4	1 20	4	4
Sheet Harbour.....	Halifax.....									
Shelburne.....	Shelburne.....	W. W. Atwood.....	9	3	5 40	16	5	9 50	25	8
Sydney.....	Sydney.....	James Rudderham.....	94	48	61 40	296	284	233 20	390	332
Thorne's Cove.....	Annapolis.....									
Truro.....	Colchester.....									
Tatamagouche.....	Colchester.....	James Ramsay.....								
Wallace.....	Cumberland.....									
Walton.....	Hants.....									
West Arichat.....	Richmond.....									
Weymouth.....	Digby.....									
Windsor.....	Hants.....									
Wolfville.....	Kings.....									
Yarmouth.....	Yarmouth.....	N. L. Trefry.....	449	295	313 00	520	589	436 70	969	884
									4,954	5,645
										4,887 50

BRITISH COLUMBIA.

Aboucet.....	Vancouver.....	John Grice.....	69	2	35 10				69	2	35 10
Clayoquot.....	Comox-Altin.....	Chas. Moser.....	4		2 00				4		2 00
Hesquait.....	Vancouver.....	Amos Ellis.....	2		1 00	4	2	2 60	6	2	3 60
Kynoquot.....	Comox.....										
Masset Inlet.....	New Westminster.....										
New Westminster.....	Victoria.....	George Kirkendale.....	976	686	693 80	902	966	740 80	1,878	1,652	1,434 60
Victoria.....	New Westminster.....	J. B. Campbell.....	1,087	194	1,062 30	920	946	897 10	2,207	1,140	1,959 40
Vancouver.....									4,164	2,796	3,434 70

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PRINCE EDWARD ISLAND.

Alberton.....	Prince.....	104	4	53 20	67	98	62 90	171	102	116 10
Charlottetown....	Queens.....	12		6 00				12		6 00
Crapand.....	F. Beers.....									
Georgetown.....	Robert McDonald..									
Malpeque.....	George Owen.....									
Murray Harbour..	Prince.....									
Montague.....	Queens.....									
Pinette.....	H. J. Berhaut.....				8	5	5 50	8	5	5 50
Port Hill.....	H. J. Berhaut.....									
St. Peter's.....	Queens.....									
Souris.....	Prince.....									
Summerside.....	Charles Wage.....									
Tignish.....	Prince.....									
	A. T. Gaudet.....									
								191	107	127 60

RECAPITULATION.

Quebec.....	2 631	1 970	\$1,916 50
New Brunswick..	1 807	783	1 138 40
Nova Scotia.....	4 954	5 645	4 887 50
British Columbia..	4 164	2 796	3 434 70
Prince Edward Island..	192	107	127 60
Total.....	13 748	11 301	\$11,504 70

*\$10 for shipping fishermen.

NOTE.—The Collector of Customs acts as Shipping Master where no other Shipping Master is appointed.

CRUISE OF THE *ARCTIC* IN NORTHERN WATERS, 1910-11.

The *Arctic*, in command of Captain J. E. Bernier, left Quebec on July 7, 1910, to patrol the northern waters in which the vessel had sailed in 1908-9. The Commander in receiving his commission was instructed to issue whaling licenses to vessels sailing in the waters contiguous to the territory now called Franklin. Sealed instructions were given to attempt the Northwest passage from Baffin bay by Lancaster sound, Barrow strait, McClure strait, and visit the stations and depots established in 1908-9, during the former cruise of the *Arctic*.

The vessel was provisioned for a two years' voyage, and it was intended that if the Northwest passage was successfully made that the vessel should call at Herschel island. From there the voyage was to be continued through Behring sea and Behring strait and to end at Victoria, Vancouver island.

The *Arctic* called at Albert harbour, Bylot island, on August 8, 1910, and the Commander visited the depot established there in previous voyages. The voyage was continued from Albert harbour and Lancaster sound was entered on the 15th following. Large quantities of heavy ice were met in the sound on the way to Erebus bay, where Franklin's monument is erected. After a most difficult passage, Griffith point on Melville island was reached on August 30. On the day following the steamer anchored in Winter harbour, Melville island, where she had wintered in the preceding cruise. An attempt was made to cross McClure strait, but the extremely heavy ice, from 50 to 60 feet in thickness, with elevations as high as icebergs, prevented the progress of the vessel. An effort was made to reach Prince of Wales strait, but this was found impossible. From Winter harbour, the vessel sailed west as far as 112° 50' west longitude, and, with no appearance of water, was obliged to return eastward to Admiralty inlet and anchored in Arctic harbour, situated well in the inlet, latitude 73.08 N., longitude 85.03 W.

During October and November, 1910, a survey party under Surveyor Lavoie was sent to survey the east coast of Admiralty inlet. The country was crossed by this party from the inlet to Fury and Hecla strait, where surveys were made. The party then returned to the ship. In December, tidal and barometric observations were kept up and the thickness of the ice measured during its formation in Arctic harbour around the vessel. From March to May, 1911, the survey party continued surveys, proceeding from Arctic bay to Prince Regent strait and traced the whole coast southwards to Fury and Hecla strait and mapped a long island composed of sand in Boothia gulf. Meteorological observations were made during this whole trip. On returning from this journey across the country, surveys were made on the east coast of Baffin land in a number of bays along the coast from North Baffin and at Salmon river, continuing to Milne harbour. This work was done on the return voyage of the ship from Arctic harbour.

Prospecting parties, for minerals, were directed to search the country in the vicinity of Arctic harbour, and a number of specimens of economic minerals, shale and coal obtained, together with a botanical collection of plants and flowers.

The work of patrolling during the movements of the ship was kept up with a view of ascertaining the number of vessels engaged in whale fishing and licenses were issued to a small number.

The *Arctic* returned to Quebec on September 25, 1911; the officers and crew were discharged with the exception of two who were retained to complete their reports.

The detailed report of Captain Bernier and officers of the ship is being prepared for publication.



